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STATE DOCUMENTS

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OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA

TIM BABCOCK
GOVERNOR



ANNUAL REVIEW FOR THE YEAR 1962

Relating To

OIL AND GAS

Volume 7

G. W. Yoder, Chairman
Ted Hawley, Vice Chairman
Allen Zimmerman
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Sub-District Office	216 East Main St., Sidney

Annual Review for the Year 1962

Volume 7

INTRODUCTION

Production for the year 1962 again reached an all time high. A total of 31,647,000 barrels were produced, with an average daily production of 86,700 barrels of oil per day. There were 419 wells drilled in the State during 1962, two more than were drilled in 1961. Ten discoveries were drilled out of a total of 164 wildcat wells. Of the 255 development wells drilled, 198 wells completed as oil or gas producers. Eastern Montana dominated the rest of the State in production and development drilling. Fallon County itself had 93 wells drilled in 1962.



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FIVE YEAR SUMMARY

	1958	1959	1960	1961	1962
Production, Northern Montana—Bbls.	4,348,256	4,307,739	4,332,218	4,211,017	4,252,304
South Central—Bbls.	3,590,554	4,514,034	3,087,871	2,895,587	3,851,672
Central—Bbls.	3,201,003	4,515,489	5,780,420	6,367,524	5,279,163
Williston Basin—Bbls.	16,816,816	16,497,964	17,039,406	17,431,916	18,264,368
TOTAL	27,956,629	29,857,226	30,239,915	30,906,044	31,647,507
No. of Producing Wells, Northern Montana					
South Central	3,120	3,067	2,811	2,447	2,615
Central	102	100	96	81	88
Williston Basin	248	266	303	324	333
TOTAL	446	455	497	535	656
Average Daily Production/Well—BOPD,					
Northern Montana	3.8	3.8	4.2	4.7	4.5
South Central	96.4	123.7	88.1	97.9	119.9
Central	35.4	46.5	52.3	53.8	43.4
Williston Basin	103.3	99.3	93.9	89.3	76.3
STATE AVERAGE	19.6	21.1	22.3	25.0	23.5
Development Wells Drilled, Oil Wells					
Gas Wells	159	156	114	169	182
Dry Holes	7	12	4	6	16
TOTAL	46	71	58	60	57
Exploratory Wells Drilled, Oil Wells					
Gas Wells	12	7	14	7	8
Dry Holes	2	6	3	2	2
TOTAL	109	101	150	173	154
TOTAL WELLS DRILLED	123	114	167	182	164
TOTAL FOOTAGE DRILLED	335	353	343	417	419
AVERAGE DEPTH ALL WELLS	1,700,404	1,627,574	1,655,172	2,209,803	2,415,856
	5,106	4,611	4,811	5,299	5,765

OIL AND GAS DISCOVERIES IN 1962

County	Field	Operator — Well Name and Location	Total Depth ft.	Producing Formation (B/D)	Initial Production Oil Gas (MCF)
Dawson	Woodrow	Texaco, Condit 1, SW SW 8-16N-54E	9,934	Devonian (New Pay)	106
Liberty	Unnamed	Signal, Govt-McGregor 1, SW SW 18-37N-6E	3,345	Sawtooth	25
Musselshell	Unnamed	Cardinal, C. M. Hall 1, SW SW 6-10N-28E	3,905	Tyler	44
Roosevelt	East Benrud	Murphy, Tribal A-1, SE NW 36-31N-47E	7,804	Devonian	874
Rosebud	Bascom	Anschutz, Sibley 1, NW NW 11-10N-31E	4,850	Tyler	408
Rosebud	Musselshell	Sumatra, DeJaegher 2, SE NE 22-11N-31E	4,420	Tyler	342
Sheridan	Unnamed	Signal, Peterson 1, NE SE 19-35N-38E	7,205	Madison	42
Sheridan	Unnamed	Sun, Hellegaard 1, SE NE 8-37N-57E	10,438	Madison & Devonian	238
Teton	Unnamed	Texaco, Govt-Pearson 1, NW SW SW 26-27N-9W	6,830	Madison	250
Toole	West Whittlash	Sumatra, Parsell 1, SE SE NE 15-37N-3E	2,880	Swift	20,450

SUMMARY OF DRILLING BY COUNTIES—1962
STATE OF MONTANA

COUNTRY	WILDCATS			DEVELOPMENT			TOTAL WELLS DRILLED	FOOTAGE DRILLED	AVG. DEPTH PER WELL
	Dry	Oil	Gas	Dry	Oil	Gas			
Big Horn	6	—	—	—	2	—	8	33,470	4,184
Blaine	1	—	—	—	1	—	1	3,025	3,025
Carbon	12	—	—	—	1	14	52,102	3,721	
Carter	11	—	—	—	—	—	11	61,114	5,556
Cascade	1	—	—	—	—	—	1	4,415	4,415
Custer	7	—	—	—	—	—	7	43,330	6,190
Daniels	1	—	—	—	—	—	1	9,800	9,800
Dawson	1	—	—	—	4	12	17	159,350	9,373
Fallon	2	—	—	—	5	80	6	779,625	8,383
Fergus	1	—	—	—	—	—	1	4,583	4,583
Garfield	5	—	—	—	—	—	5	25,890	5,178
Glacier	3	—	—	—	3	21	27	83,273	3,084
Golden Valley	1	—	—	—	—	—	1	3,298	3,298
Hill	1	—	—	—	—	—	1	4,002	4,002
Lewis & Clark	1	—	—	—	—	—	1	7,761	7,761
Liberty	2	1	—	—	—	—	10	50,613	2,977
McCone	5	—	—	—	2	4	4	96,793	8,799
Musselshell	11	1	—	—	19	12	—	184,092	4,281
Park	2	—	—	—	—	—	2	15,590	7,795
Petroleum	4	—	—	—	1	2	7	16,922	2,417
Phillips	2	—	—	—	—	—	1	7,805	3,903
Pondera	4	1	—	—	—	—	8	35,936	2,567
Powder River	10	—	—	—	—	—	10	77,269	7,727
Richland	2	—	—	—	—	3	—	47,899	9,579
Roosevelt	9	1	—	—	—	4	1	119,381	7,958
Rosebud	11	2	—	—	—	9	8	151,152	5,038
Sheridan	9	2	—	—	—	1	6	148,322	8,240
Stillwater	1	—	—	—	1	1	—	2,978	2,978
Teton	19	—	—	—	—	—	—	73,525	3,342
Sweetgrass	1	—	—	—	—	—	1	6,450	6,450
Toole	2	—	—	—	1	8	4	23	54,310
Valley	2	—	—	—	—	—	—	10,077	5,038
Wibaux	1	—	—	—	—	3	—	38,564	9,641
Yellowstone	3	—	—	—	—	—	3	3,140	1,046
TOTALS	154	8	2	57	182	16	419	2,415,856	5,765

MONTANA
GAS PRODUCTION DATA—1962

Field	County	Producing Formation	1962 Production MCF
Bears Den	Liberty	Kootenai	45,252
Big Coulee	Golden Valley	Lakota-Morrison	952,801
Bowdoin	Phillips & Valley	Colorado	2,711,954
Bowes	Blaine	Eagle	1,031,821
Cabin Creek	Fallon	Siluro-Ordovician	1,012,056
Cedar Creek	Fallon & Wibaux	Judith River & Eagle	5,799,544
Cut Bank & Reagan	Glacier & Toole	Kootenai	8,618,812
Devon	Toole	Colorado	47,605
Dry Creek	Carbon	Cretaceous	1,956,381
Elk Basin	Carbon	Tensleep	320,733
Flat Coulee	Liberty	Kootenai	83,046
Golden Dome	Carbon	Eagle	72,296
Grandview	Liberty	Greenhorn	114,823
Hardin	Big Horn	Frontier	53,978
Keith Block	Liberty	Sawtooth-Madison	2,041,751
Kevin-Sunburst	Toole	Kootenai	916,687
Pine	Dawson, Prairie, Fallon, Wibaux	Siluro-Ordovician	758,692
Plevna	Fallon	Judith River	175,996
Utopia	Liberty	Sawtooth-Ellis	488,944
Whitlash	Liberty	Colorado	1,040,424
Miscellaneous			159,982
TOTAL ALL FIELDS			28,403,578

REFINING

	<u>Year 1962 Total Bbls.</u>
Big West Oil Company	855,080
Continental Oil Company	5,573,439
Diamond Asphalt Company	207,144
Farmers Union Central Exchange, Inc.	6,494,613
Humble Oil & Refining Company	12,027,731
Jet Fuel Refinery	91,724
Petrofuels Refining Company	372,517
Phillips Petroleum Company	1,436,308
Union Oil Company	1,090,704
TOTAL Bbls. Oil Refined in Montana (1962)	28,149,260

SUMMARY OF WATER DISPOSAL FACILITIES IN MONTANA
1962

Field	Operator	Disposal Formation	Average Depth	Commenced	Cumulative 1-1-63	Avg. Inj. Pressure—psi	Daily Avg. BWPD.
Cabin Creek	Shell	Dakota	3,950	6-12-58	7,531,597	—	6,521
Deer Creek	Texaco	Dakota	4,610	3- 3-57	787,318	296	402
Gas City	Shell	Judith River	2,710	6- 1-62	121,923	355	669
Glendive	Texaco	Dakota	4,250	3-25-56	1,234,477	1292	848
Little Beaver & Little Beaver East	Shell	Madison	6,779	8- 5-62	321,463	—	2,108
Outlook	Amerada	Dakota	4,082	1-12-60	1,276,910	700	1,584
Pennel	Shell	Red River	8,650	8- 5-61	386,578	1300	705
Pennel	Mobil	Madison	7,065	10-16-62	16,180	600	176
Pondera	Phillips	Madison	2,212	11- 2-56	4,105,932	Vacuum	1,241
East Poplar	Murphy	Dakota	4,000	9- 1-57	17,596,027	550	15,724
East Poplar	Polumbus	Judith River	850	9- 1-60	516,711	363	1,371
Richey	Texota	Lakota	4,971	12- 9-61	225,680	508	564
Richey	Robinson	Dakota	4,900	12- 1-59	2,352,932	650	251
Sand Creek	Texaco	Swift	4,770	6-28-61	517,778	1037	869
Tule Creek	Murphy	Dakota	4,000	6-10-62	153,292	720	727

**SUMMARY OF ACTIVE SECONDARY RECOVERY PROJECTS
STATE OF MONTANA**

(Data effective to January 1, 1963)

Field, Formation	Operator	Type of Project	Injection Pattern	Date Injections Commenced	Cumulative Injections 1000's Bbls. or MMCF	Dec. 1962 Avg. Daily Injection Rate	Average Injection Pressure psi	Est. Life of Project Years	Est. Orig. Sec. Reserves 1000's Bbls.	Source of injection Media	
Bowd, Sawtooth	Texaco	Waterflood	Pilot S-Spot	5-23-61	413	693	12	14	\$,000	Madison	
Cabin Creek, Siluro-Or-dovician	Shell	"	Pilot	6-12-59	1,844	1,000	360	19	19,000	Prod. Water & Fox Hills	
Cat Creek, 1st & 2nd C.C. Unit I	Continental	"	Periphial	10-62	76	945	--	10	3,000	Third Cat Creek	
Cat Creek, 1st & 2nd C.C. Unit II	Continental	"	Periphial	12-59	5,709	8,713	--	9	3,000	Third Cat Creek	
Cut Bank, NW Unit, Cut Bank	Humble	"	S-Spot	1-30-62	584	1,621	1,850	14	2,800	Madison	
SE Unit, Cut Bank	Texaco	"	S-Spot	4-18-62	840	3,389	1,860	14	5,700	Madison	
SW Unit, Cut Bank	Phillips	"	S-Spot	9-11-62	281	2,480	175	14	18,000	Madison	
Tribal, Lander	Humble	"	Dispersed	6-51	3,248	986	1,200	7	500	Eagle	
McGuinness, Houlton	Union	"	Dispersed	12-21-62	1	102	--	--	5	500	Madison
Elk Basin, Frontier	Pan American	Gas Inj.	Crestal	1926	All injection wells in Wyoming			10	No Prim. est.	Purchased Gas	
Embar-Tensleep	Pan American	"	Crestal	1949	All injection wells in Wyoming			50	No Prim. est.	Manufactured inert Gas	
Madison	Pan American	Waterflood	Periphial	1962	2,243	8,326	2,100	50	10,106	Madison & Clarks Fork River	
Elk Basin, N.W., Frontier	Sinclair	"	Periphial	10-17-57	1,004	557	--	9	340	Madison	
Kevin-Sunburst, Madison	Imperial Craig	"	Dispersed		744	348	--	Inconcl.	--	Madison	
Kevin-Sunburst, Madison	Northwest Prod.	"	Pilot S-Spot	1-23-61	429	693	750	Inconcl.	--	Madison	
Pine, Siluro-Or-dovician	Shell	"	Modified Periphial	3-10-59	4,832*	8,630*	1250 to 1650	24	14,800	Prod. Water & Fox Hills	
Pondera, Madison	Phillips	"	One well pilot	8-22-61	186	365	Vacuum	Inconcl.	--	Madison	
Poplar, Madison	Murphy	"	Periphial	9-56	8,770	2,545	350	Inconcl.	--	Madison produced water	
Reagan, Madison	Union	Gas Inj.	Crestal	8-61	377*	1,306*	1,020	19	600	Produced Gas	
Stensvad, Tyler	Pan American	Waterflood	Periphial	Pend. Unit appr.	--	--	--	10	4,110	Madison	
								TOTAL	87,456		

* Date effective to 12-1-62.

TOTAL
86,705
B.O.P.D.

B.O.P.D. (THOUSANDS)

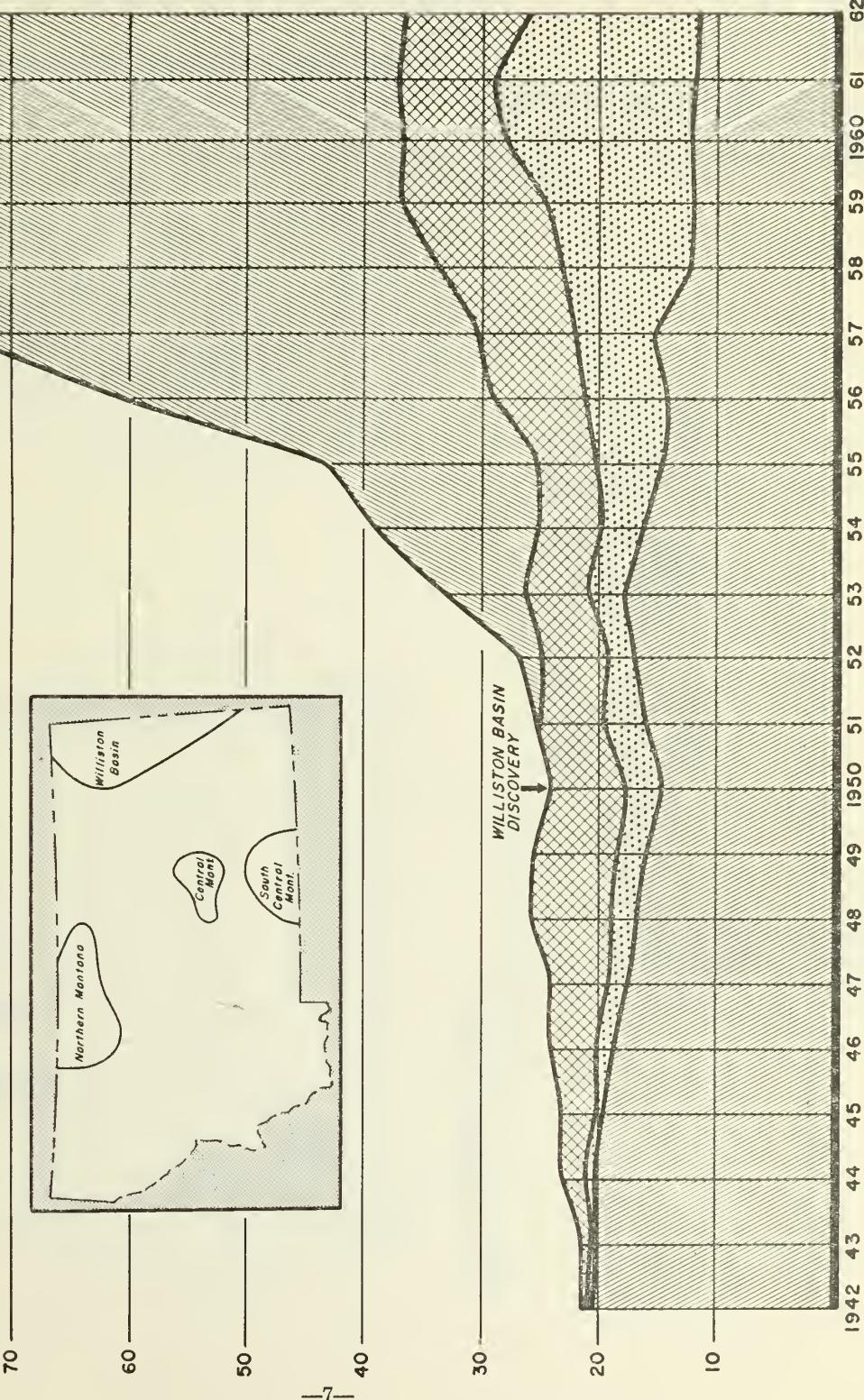
CRUDE OIL PRODUCTION
1942-1962

1962
PERCENT
WILLISTON 57.7 %

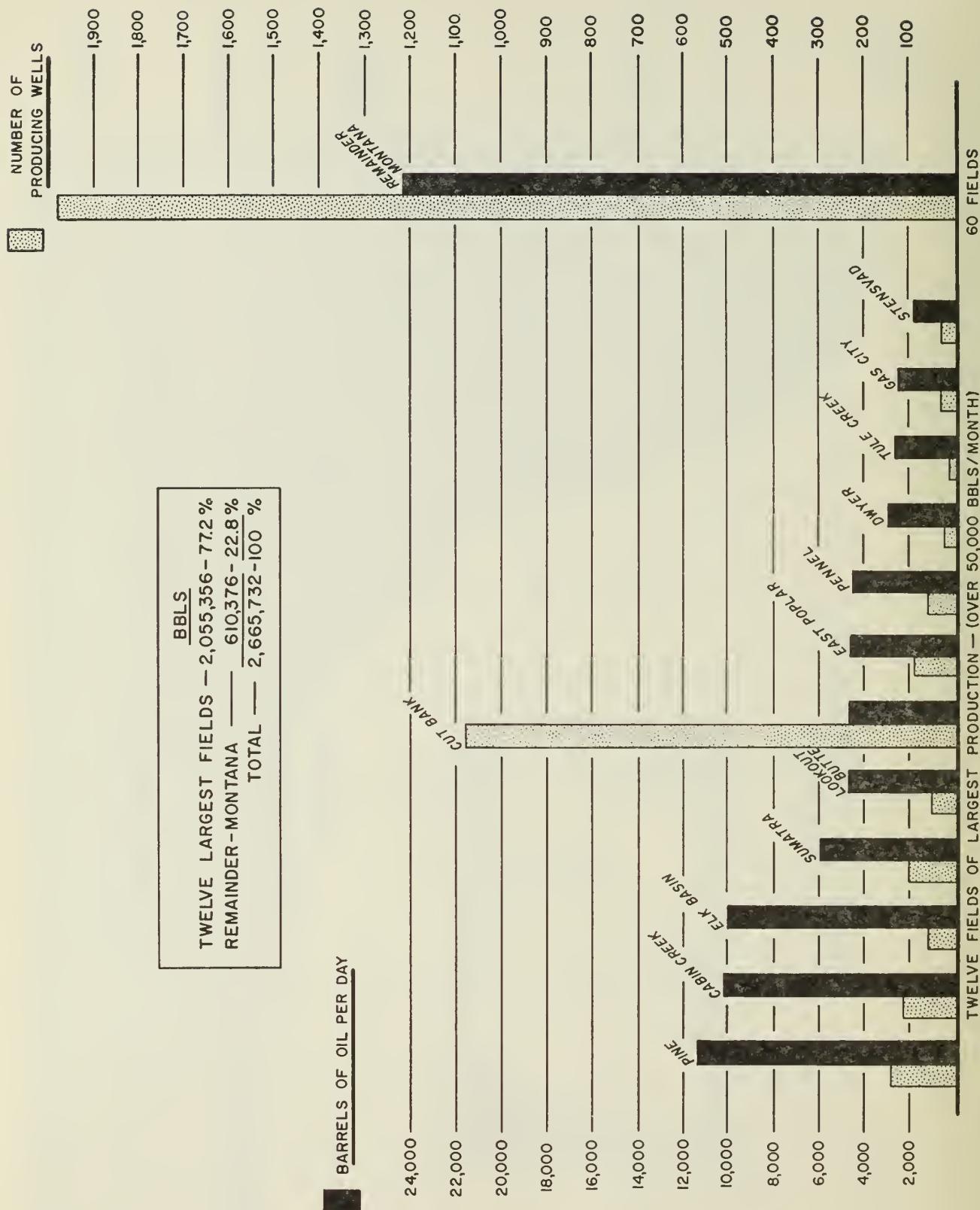
SOUTH
CENTRAL
MONTANA
12.2 %

CENTRAL
MONTANA
16.7 %

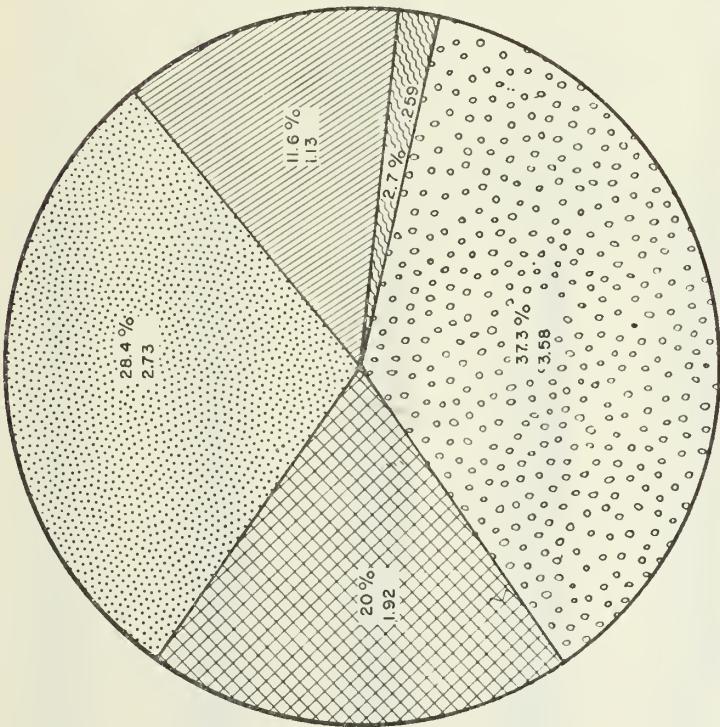
NORTHERN
MONTANA
13.4 %



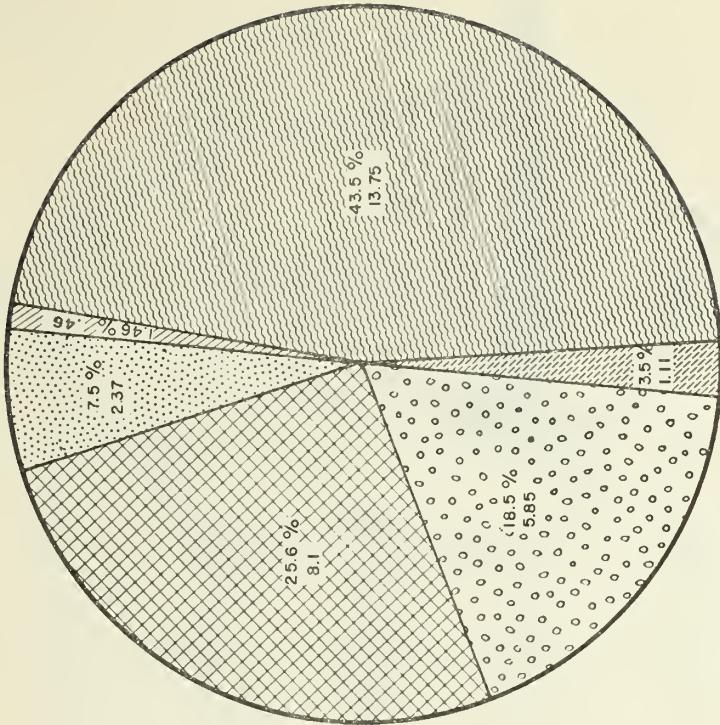
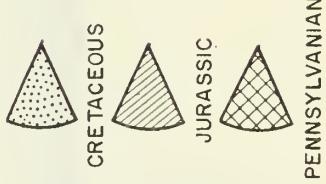
CRUDE OIL PRODUCTION-MONTH OF DECEMBER, 1962



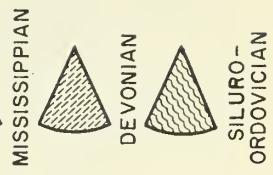
PRODUCTION BY GEOLOGIC AGE
1952



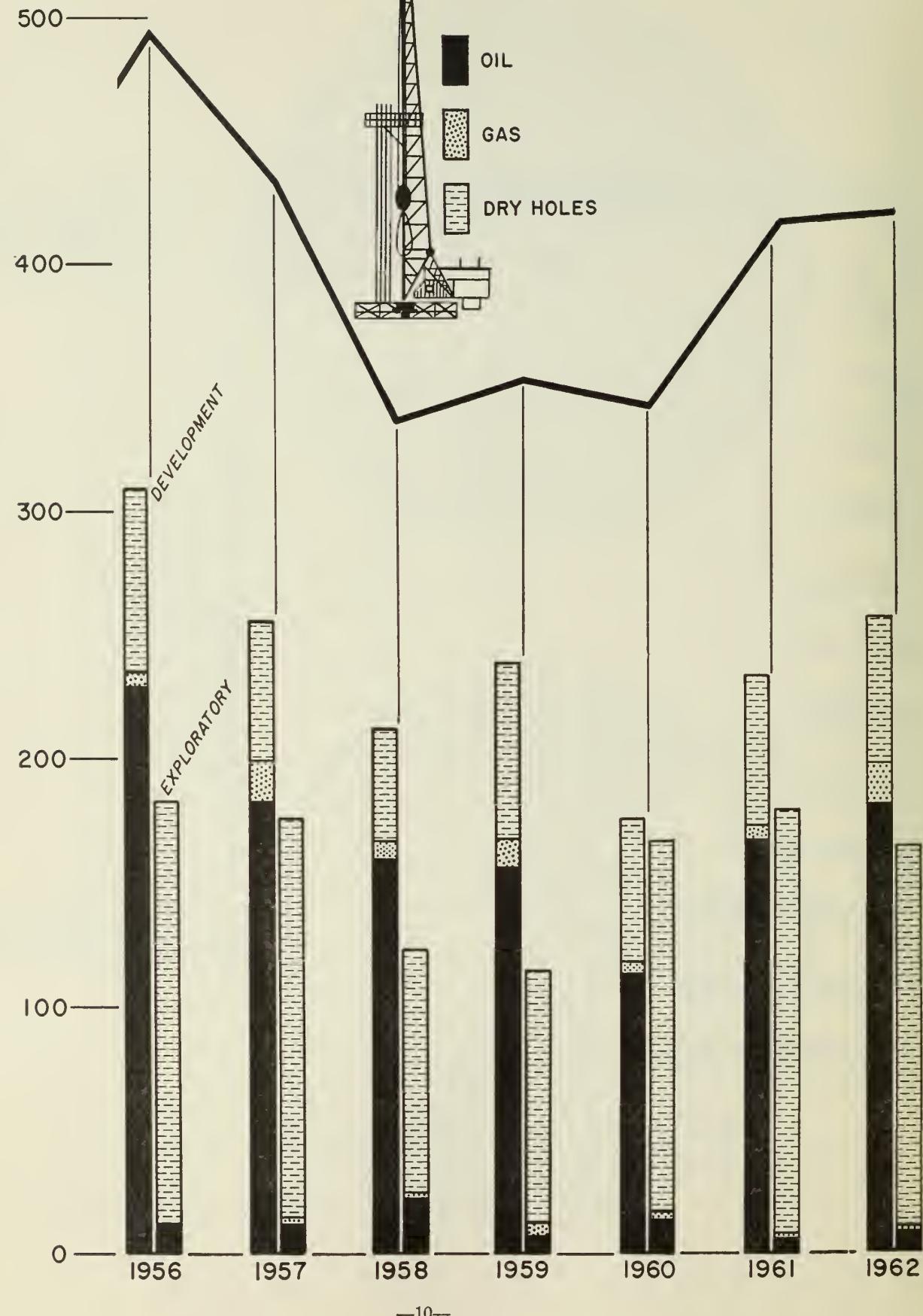
9.6 — TOTAL — MILLIONS OF BARRELS — 31.6



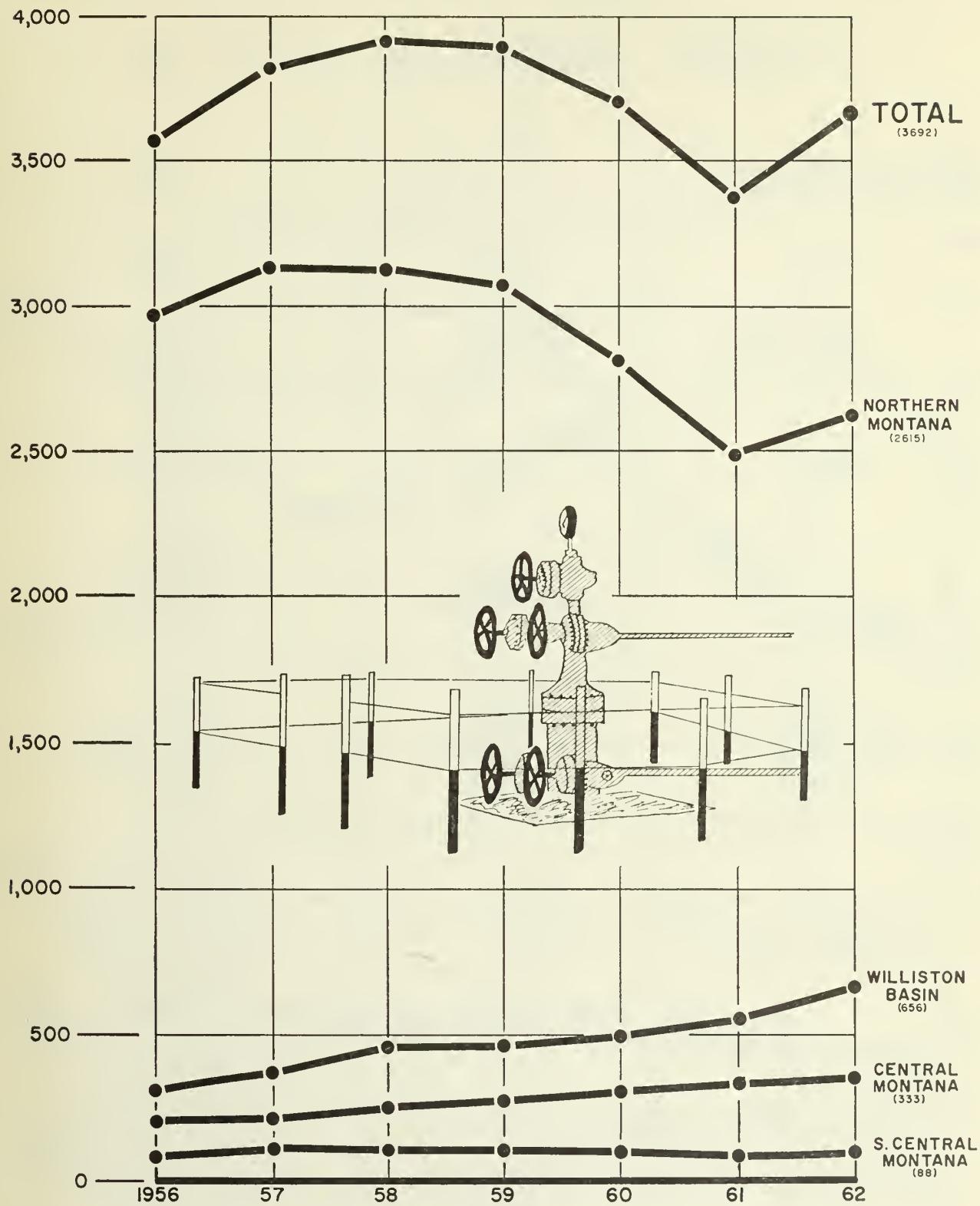
— TOTAL — MILLIONS OF BARRELS — 31.6



NUMBER OF
WELLS DRILLED

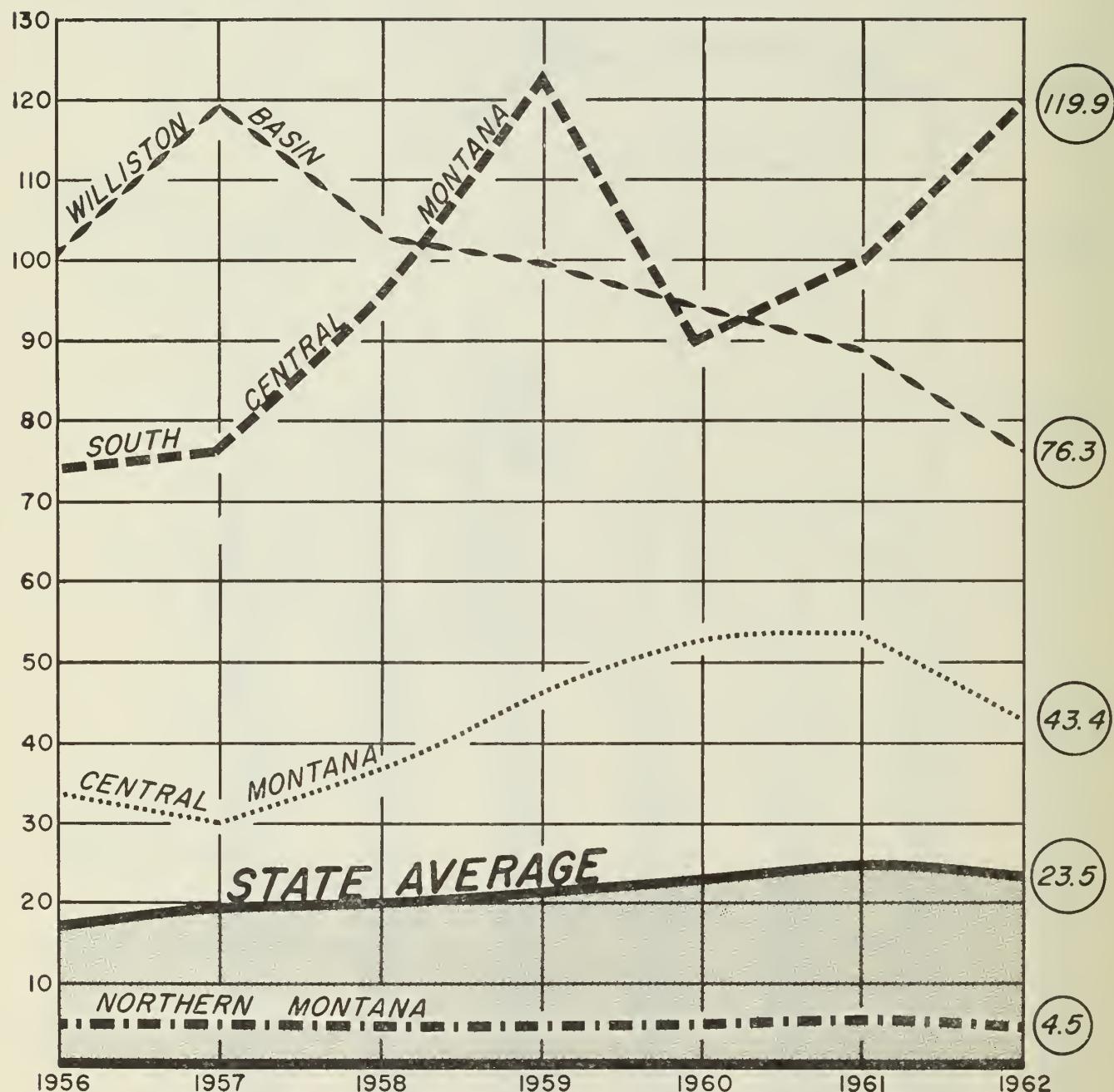


NUMBER OF PRODUCING WELLS

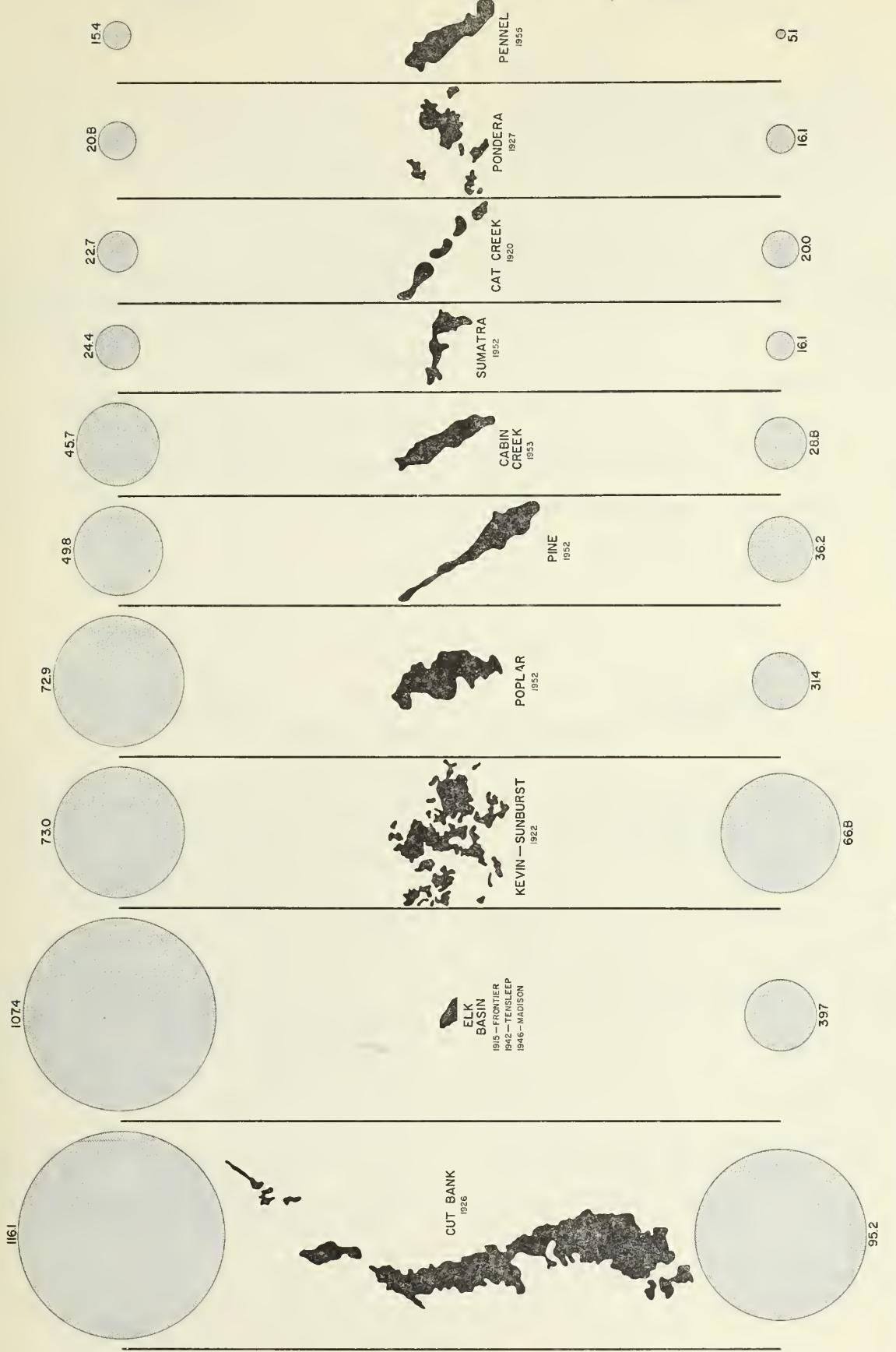


— AVERAGE —
DAILY PRODUCING RATE

B.O.P.D./WELL



ORIGINAL PRIMARY RESERVES —



CUMULATIVE PRODUCTION —

TEN TOP FIELDS — MILLIONS OF BARRELS

ASH CREEK

County: Big Horn

Discovery Well:

Name: McDermott-Shell, Elsie Berry No. 1

Location: NW SW Sec. 24, T. 58N., R. 85W., Sheridan County, Wyo.

Date Completed: April 26, 1952

Total Depth: 4799'

Initial Potential: 180 BOPD, 20 BWPD

Spacing Regulations:

330' from boundary of quarter-quarter section, and 1320' between wells. 75' tolerance for topographical conditions. The field boundaries are not delineated.

Special Field Rules:

State-wide rules.

No. Producing Wells: 4

Type of Trap: Anticline

Productive Formations: Shannon sandstone of Upper Cretaceous age.

Probable Drive Mechanism: Partial water drive and depletition drive.

BASCOM

County: Rosebud

Discovery Well:

Name: Anschutz Oil, Sibley 1

Location: NW NW Section 11, T. 10N., R. 31E.

Date Completed: August 8, 1962

Total Depth: 4850'

Initial Potential: 408 BOPD

Deepest Well:

Above well

Spacing Regulations:

80-acre spacing, permitted well in Center of NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each quarter section, 200' topographic tolerance permitted. Temporary spacing expires September 13, 1963. Delineated by Order No. 52-62.

No. Producing Wells: 1

Type of Trap: Structural and Stratigraphic

Productive Formations: Tyler

Probable Drive Mechanism: Depletition drive

BANNATYNE

County: Teton

Discovery Well:

Name: Genou Oil & Gas, Speer No. 1

Location: NW NW Sec. 8, T. 25N., R. 1E.

Date Completed: July 21, 1927

Total Depth: 1580'

Initial Potential: 30 BOPD

Deepest Well: Thomas Carney, Speer No. 2, T.D. 3115'

Spacing Regulations:

Center of 10 acre tracts, 50' tolerance for topographic conditions, delineated by Commission Order No. 20-58.

Special Field Rules:

State-wide rules.

No. Producing Wells: 13

Type of Trap: Anticline

Productive Formations: Swift (Jurassic)

Probable Drive Meehanism: Water drive

Secondary Recovery:

A waterflood secondary recovery project is approved for this field. The operator has not yet begun injections.

BEARS DEN

County: Liberty

Discovery Well:

Name: Kenneth Frazier, Ritter-Govt. No. 1-X

Location: SW SE Sec. 12, T. 36N., R. 5E.

Completed: July 6, 1924

Total Depth: 3290'

Initial Potential: 5,000 MCFGPD

Deepest Well:

Above well

Spacing Regulations:

330' from boundary of quarter-quarter section, and 1320' between wells. Tolerance of 75' for topographic reasons. Field is not delineated.

Special Field Rules:

State-wide rules.

No. Producing Wells: 5

Type of Trap: Anticline

Productive Formations: Kootenai (Lower Cretaceous)

Probable Drive Meehanism: Depletion and gas cap drive.

BELFRY

County: Carbon

Discovery Well:

Name: Carter, Wheatley-Govt. No. 1

Location: NW NW Sec. 7, T. 9S, R. 22E.

Date Completed: March 22, 1958

Total Depth: 12,185'

Initial Potential: 196 BOPD, 1,121 MCFGPD

Deepest Well: Above well

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Field not delineated.

Special Field Rules:

State-wide rules.

No. Producing Wells: 1

Type of Trap: Stratigraphic

Productive Formations: Fuson (Lower Cretaceous)

Probable Drive Mechanism: Depletion and solution gas drive.

BENRUD — EAST

County: Roosevelt

Discovery Well:

Name: Murphy Corp., Ft. Peck Tribal 1-A

Location: SE NW Sec. 36, T. 31N., R. 47E.

Date Completed: December 13, 1962

Total Depth: 7804'

Initial Potential: 503 BOPD

Deepest Well: Above well

Spacing Regulations:

160-acre spacing, well to be no closer than 900' from any boundary at a quarter section. Field delineated by Order No. 2-63. Temporary order expires January 10, 1964.

Special Field Rules:

Semi-annual bottom hole pressure surveys and quarterly well tests required

No. Producing Wells: 1

Type of Trap: Structural

Productive Formations: Nisku (Devonian)

Probable Drive Mechanism: Water drive

BENRUD

County: Roosevelt

Discovery Well:

Name: Cooperative Refinery Association, Listug-Olson "A" 1

Location: NE SW Sec. 34, T. 31N., R. 47E.

Date Completed: December 7, 1961

Total Depth: 7620'

Initial Potential: 498 BOPD, 16/64" ck., no water.

Deepest Well: Above well (Devonian)

Spacing Regulations:

160-acre spacing units, permitted well to be no closer than 900' to any boundary of spacing unit. Field delineated by Order No. 44-62 and 2-63.

Special Field Rules: Semi-annual bottom hole pressure surveys required

No. Producing Wells: 1

Type of Trap: Structural

Productive Formation: Nisku (Devonian)

Probable Drive Mechanism: Water drive

BIG COULEE

County: Stillwater and Golden Valley

Discovery Well:

Name: Northern Natural Gas, NP "B" 1

Location: NW SE Sec. 31, T. 5N., R. 20E.

Date Completed: September 19, 1954

Total Depth: 2145'

Initial Potential: 5,515 MCFGPD

Deepest Well: Above well (Cambrian)

Spacing Regulations:

1320' from lease line, 3700' between wells, 75' tolerance for topographic reasons, not delineated.

Special Field Rules:

State-wide rules.

No. Producing Wells: 4

Type of Trap: Anticline

Productive Formations: Lakota (Lower Cretaceous). Morrison (Jurassic)

Probable Drive Mechanism: Water drive

BIG WALL

County: Musselshell

Discovery Well:

Name: Texaco, NP No. 1

Location: SE NE NW Sec. 19, T. 10N., R. 27E.

Date Completed: July 1, 1948

Total Depth: 3139'

Initial Potential: 9 BOPD

Deepest Well: Texaco, Zoerb No. 1, Section 18, T. 10N., R. 27E. Kibbey (Mississippian). T.D. 3617'

Spacing Regulations:

330' from lease line, 990' between wells, 75' tolerance for topographic reasons. Delineated by Order No. 12-54.

Special Field Rules:

State-wide rules.

No. Producing Wells: 31

Type of Trap: Structural

Productive Formations: Amsden (Pennsylvanian); Tyler (Pennsylvanian)

Probable Drive Mechanism: Amsden, water drive; Tyler, depletion.

Water Disposal: The Tyler "A" sand has previously been used as a water disposal formation. Water injection was ceased on November 1, 1961 after approximately 3,200,000 barrels had been injected. Water is now being backflowed to relieve pressure in the Tyler "A" sand.

BLACKLEAF CANYON

County: Teton

Discovery Well:

Name: Northern Natrual Gas, Blackleaf-Federal "A" No. 1

Location: NW SE NE Sec. 13, T. 26N., R. 9W.

Date Completed: May 22, 1958

Total Depth: 6323'

Initial Potential: 5,293 MCFGPD

Deepest Well: Above well

Spacing Regulations:

1320' from lease line, 3700' between wells, 75' tolerance for topographic reasons; not delineated.

Special Field Rules:

State-wide rules.

No. Producing Wells: Shut-in

Type of Trap: Fault block

Productive Formation: Madison (Mississippian)

Probable Drive Mechanism: Unknown

BLACKFOOT

County: Glacier

Discovery Well:

Name: Union Oil Co., Muntzing No. 1

Location: NE NW Sec. 11, T. 37N., R. 6W.

Date Completed: October, 1956

Total Depth: 3542'

Initial Potential: 15 BOPD

Deepest Well: Mobil, F-34-3-1. Madison (Mississippian). T.D. 3687'

Spacing Regulations:

Center of 40 acres, 300' tolerance for topographic reasons, delineated by Order No. 3-57.

Special Field Rules:

Dual completions permitted upon approval by Petroleum Engineer.

No. Producing Wells: 14

Type of Trap: Structural and stratigraphic

Productive Formations: Cut Bank Sand (Cretaceous); Madison (Mississippian)

Probable Drive Mechanism: Partial water drive and depletion drive

BORDER

County: Toole

Discovery Well:

Name: Vanalta Oil Co., Ltd. No. 1

Location: L.S.D. 3, Sec. 4, T. 1N., R. 16W., Alberta, Canada.

Date Completed: September 25, 1929

Total Depth: 2477'

Initial Potential: 85 BOPD

Deepest Well: Empire State, Iowa Holding Co. No. 2. Jefferson (Devonian). T.D. 4920'

Spacing Regulations:

220' from quarter-quarter section line and 430' between wells, 75' tolerance for topographic reasons. Field is delineated by Order No. 7-54.

Special Field Rules:

State-wide rules, except Rules No. 207, 219, 211, 223 and 224, which do not apply.

No. of Producing Wells: 7

Type of Trap: Stratigraphic and structural

Productive Formations: Cut Bank (Lower Cretaceous)

Probable Drive Mechanism: Depletion drive

BOWDOIN

County: Phillips and Valley

Discovery Well:

Name: Martin well

Location: Sec. 18, T. 31N., R. 35E.

Date Completed: 1913

Total Depth: 740'

Initial Potential: Unknown

Deepest Well: Texaco, Dupont No. 1, Sec. 8, T. 32N., R. 32E. Cambrian. T.D. 5855'

Spacing Regulations:

One well to each quarter-section; at least 1,000' from any lease boundary and 2,000' between wells; field not delineated.

Special Field Rules:

State-wide rules.

No. Producing Wells: 364

Type of Trap: Structural

Productive Formations: Bowdoin and Phillips sands in upper part of Colorado shale (Cretaceous)

Probable Drive Mechanism: Volumetric

BOX ELDER

County: Blaine

Discovery Well:

Name: Perkins, Stranahan No. 1

Location: NW NW NE Sec. 14, T. 32N., R. 17E.

Date Completed: June 17, 1931

Total Depth: 1276'

Initial Potential: 8000 MCFGPD

Deepest Well: Northern Ordnance, Morphey No. 1, Sec. 14, T. 32N., R. 17E. Madison (Mississippian). T.D. 4212'

Spacing Regulations:

State-wide rules

Special Field Rules:

Not applicable

Type of Trap: Structural

Productive Formations: Eagle (Upper Cretaceous)

The Eagle sandstone is presently being used by The Montana Power Company for a gas storage reservoir.

BOWES

County: Blaine

Discovery Well:

Name: California, Johnson & Hobson No. 1

Location: NE NE NE Sec. 9, T. 31N., R. 19E.

Date Completed: October 17, 1926

Total Depth: 4700'

Initial Potential: Show oil

Deepest Well: Northern Ordnance, Guertzgen No. 5, Sec. 1, T. 31N., R. 19E. Devonian. T.D. 5082'

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons; field delineated by Order No. 13-54.

Special Field Rules:

State-wide rules.

No. Producing Wells: 74

Type of Trap: Structural

Productive Formations: Gas—Eagle (Upper Cretaceous); Oil—Sawtooth (Jurassic)

Probable Drive Mechanism: Eagle, volumetric; Sawtooth, water drive

Secondary Recovery: A pilot five spot waterflood was initiated in the Sawtooth formation on May 23, 1961.

BRADY

County: Pondera

Discovery Well:

Name: Texaco, Inc., Schlepp 1

Location: SE SE SE Sec. 21, T. 27N., R. 2W.

Date Completed: September 10, 1943

Total Depth: 1725'

Initial Potential: 14 BOPD

Spacing Regulations:

Center of 10-acre spacing with 75' topographic tolerance permitted. Order No. 34-62 delineates the field.

No. Producing Wells: 12

Type of Trap: Structural

Productive Formations: Sunburst (Lower Cretaceous)

Probable Drive Mechanism: Depletion drive

BREDETTE — NORTH

County: Daniels and Roosevelt

Discovery Well:

Name: California Company, Paulson No. 1
Location: NW SW Sec. 34, T. 33N., R. 49E.
Date Completed: May 27, 1956
Total Depth: 7475'
Initial Potential: 114 BOPD, 7/64" ck.

Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:

80-acre spacing, permitted wells in the NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each quarter section, 75' tolerance for topographic reasons. Field delineated by Order No. 20-56.

Special Field Rules:

State-wide rules

No. Producing Wells: 2

Type of Trap: Structural

Productive Formations: Charles (Mississippian)

Probable Drive Mechanism: Water drive

CAT CREEK

County: Garfield and Petroleum

Discovery Well:

Name: Frantz Corp., No. 1
Location: SW SE NW Sec. 21, T. 15N., R. 30E.
Date Completed: February, 1920
Total Depth: 998'
Initial Potential: 10 BOPD

Deepest Well: Arro-California, Charles No. 4, Sec. 21, T. 15N., R. 30E. Cambrian. T.D. 5705'

Spacing Regulations:

220' from lease line, 440' between wells; field delineated by Orders No. 14-54 and 17-55

Special Field Rules:

State-wide rules

No. Producing Wells: 101

Type of Trap: Structural

Productive Formations: Kootenai, Morrison, Swift

Probable Drive Mechanism: Depletion drive

Secondary Recovery: A portion of the field has been unitized and a waterflood secondary recovery program is in progress. More details concerning this project appear earlier in the report

CABIN CREEK

County: Fallon

Discovery Well:

Name: Shell, No. 22-33
Location: NE SE NW Sec. 33, T. 10N., R. 58E.
Date Completed: June 9, 1953
Total Depth: 9412'
Initial Potential: 1248 BOPD, 32 BWPD, flow into open line.

Deepest Well: Shell, 21-17, Sec. 17, T. 10N., R. 58E. Pre-Cambrian. T.D. 10,573'

Spacing Regulations:

Commission waives Rules No. 203, 213, 218 and 219 in unitized portion of field. Field delineated by Order No. 36-62.

No. Producing Wells: 116

Type of Trap: Structural

Productive Formation: Mission Canyon (Mississippian). Silurian-Ordovician

Probable Drive Mechanism: Mission Canyon, water drive; Siluro-Ordovician, depletion drive

Secondary Recovery: Pressure maintenance by water injection project is being expanded to include a larger portion of the field. More details concerning this project appear earlier in the report

Water Disposal: Produced water has been injected into the Dakota formation since 1957. More details appear earlier in the report.

CEDAR CREEK

County: Fallon and Wibaux

Discovery Well:

Name: Eastern Montana Oil & Gas Co.
Location: NE NE Sec. 20, T. 14N., R. 55E.
Date Completed: November, 1912
Total Depth: 2710'
Initial Potential: 2,500 MCFGPD (est.)

Spacing Regulations:

Judith River: 1200' from quarter section line and 2400' between wells, 75' tolerance for topographic reasons. Field delineated by Order No. 33-54
Eagle: 320-acre spacing, permitted wells to be located in the NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each section. A 200' topographic tolerance is permitted. Order No. 1-61

Special Field Rules:

State-wide rules

No. Producing Wells: 232

Type of Trap: Structural

Productive Formations: Judith River (Upper Cretaceous). Eagle (Upper Cretaceous)

Probable Drive Mechanism: Volumetric

CLARKS FORK — NORTH

County: Carbon

Discovery Well:

Name: British-American, Montana State No. 1
Location: NE SE Sec. 16, T. 9S., R. 22E.
Date Completed: January 30, 1956
Total Depth: 10,877'
Initial Potential: 338 BOPD, 1681 MCFGPD, 18/64" ck.

Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons; not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: 2

Type of Trap: Structural and stratigraphic

Productive Formations: Dakota (Lower Cretaceous).
Lakota (Lower Cretaceous)

Probable Drive Mechanism: Gas cap and water drive

CUT BANK

County: Glacier and Toole

Discovery Well:

Name: Sand Point, Berger No. 1 (Gas well)
Location: SE SE NW Sec. 1, T. 35N., R. 5W.
Date Completed: 1926
Total Depth: 2978'
Initial Potential: 8,000 MCFGPD

Deepest Well: Union, Stuft 418-7. Cambrian. T.D. 5500'

Spacing Regulations:

320' from quarter-quarter section line, 650' between wells, fifth well in center of 40 permitted, 75' tolerance for topographic reasons. Field delineated by Orders No. 10-54 and 21-59

Special Field Rules:

State-wide rules except Rules 207, 211, 219, 221, 223 and 224 do not apply.

No. Producing Wells: 1082

Type of Trap: Stratigraphic

Productive Formations: Kootenai (Lower Cretaceous);
Madison (Mississippian)

Probable Drive Mechanism: Depletion drive

Secondary Recovery: Three partial field units have been formed for the purpose of initiating water-flood operations. More details appear earlier in this report

CUPTON

County: Fallon

Discovery Well:

Name: Rothschild, Northwest Improvement No. 44-15
Location: SE SE Sec. 15, T. 9N., R. 59E.
Date Completed: August 30, 1955
Total Depth: 9785'
Initial Potential: 306 BOPD, 165 BWPD

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations:

80-acre spacing, permitted wells in the SE 1/4 and NW 1/4 of each quarter section, 75' tolerance for topographic reasons. Delineated by Order No. 6-62

Special Field Rules:

State-wide rules

No. Producing Wells: 1

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Water drive

DEER CREEK

County: Dawson

Discovery Well:

Name: Texaco, No. 1 NP "G" (NCT-4)
Location: SW SW Sec. 23, T. 17N., R. 53E.
Date Completed: August 29, 1952
Total Depth: 10,128'
Initial Potential: 191 BOPD

Deepest Well: Texaco, Ekland No. 1, Sec. 26, T. 17N., R. 53E. Red River (Ordovician). T.D. 10,228'

Spacing Regulations:

80-acre spacing, permitted well in the NE 1/4 and SW 1/4 of each quarter section, 75' tolerance for topographic reasons. Delineated by Order No. 23-55

Special Field Rules:

State-wide rules

No. Producing Wells: 6

Type of Trap: Structural

Productive Formations: Red River (Ordovician); Interlake (Silurian)

Probable Drive Mechanism: Water drive

Water Disposal: An average of 402 BWPD at a pressure of 296 psig. was injected during 1962. Approximately 787,000 barrels of water have been disposed of into the Dakota formation since March, 1957 when the project started

DELPHIA

County: Musselshell

Discovery Well:

Name: Texota, Goffena No. 1

Location: NW NE Sec. 26, T. 9N., R. 27E.

Date Completed: December 20, 1956

Total Depth: 6311'

Initial Potential: 124 BOPD

Deepest Well: Texota-Bradley, Goffena No. A-1. Charles (Mississippian). T.D. 6811'

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Field not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: 2

Type of Trap: Structural

Productive Formations: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

DEVON

County: Toole

Discovery Well:

Name: Minot, Shelby Holding Co. No. 1

Location: SW NE Sec. 18, T. 33N., R. 2E.

Date Completed: 1926

Total Depth: 1795'

Initial Potential: 3500 MCFGPD

Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:

1320' from lease line, 3700' between wells, 75' tolerance for topographic reasons. Field not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: 21

Type of Trap: Stratigraphic

Productive Formations: Blackleaf (Colorado Shale), (Lower Cretaceous)

Probable Drive Mechanism: Volumetric

DEVILS BASIN

County: Musselshell

Discovery Well:

Name: Van Duzen Oil, No. 1

Location: NE SW NW Sec. 24, T. 11N., R. 24E.

Date Completed: December, 1919

Total Depth: 2110'

Initial Potential: 12 BOPD

Deepest Well: Clark Drilling Company, NP No. 1. Cambrian. T.D. 4081'

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons; field not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: Shut-in

Type of Trap: Structural

Productive Formations: Heath (Upper Mississippian)

Probable Drive Mechanism: Depletion drive

DRY CREEK

County: Carbon

Discovery Well:

Name: Ohio Oil Company, NP No. 1

Location: 1940' N/S, 2900' W/E, Sec. 11, T. 7S., R. 21E.

Date Completed: March 31, 1929

Total Depth: 5772'

Initial Potential: 6500 MCFGPD (Frontier)

Deepest Well: Ohio Oil Company, NP No. 18, Sec. 3, T. 7S., R. 21E. Cambrian. T.D. 8882'

Spacing Regnlatiions:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons; field not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: 3

Type of Trap: Structural

Productive Formations: Eagle (Upper Cretaceous) gas; Frontier (Upper Cretaceous) gas; Greybull (Lower Cretaceous) oil; Prior (Lower Cretaceous) oil

Probable Drive Mechanism: Gas sands, volumetric; oil sands, combinations water and depletion drive

Dwyer

County: Sheridan

Discovery Well:

Name: Mobil, Muller No. F-44-20-P

Location: SE SE Sec. 20, T. 32N., R. 59E.

Date Completed: January 8, 1960

Total Depth: 12,033'

Initial Potential: 51 BOPD, 49 BWPD

Deepest Well: Above well, Red River (Ordovician)

Spacing Regulations:

160-acre spacing, permitted well in the SE $\frac{1}{4}$ of each quarter section, 175' tolerance for topographic reasons, field delineated by Order No. 25-60, and 29-61

Special Field Rules:

State-wide rules

No. Producing Wells: 24

Type of Trap: Probably combination structural and stratigraphic

Productive Formations: Mission Canyon (Mississippian)

Probable Drive Mechanism: Water drive

Elk Basin — Northwest

County: Carbon

Discovery Well:

Name: Sinclair Wyoming Oil Co., NW EB Unit No. 1

Location: SW NW Sec. 28, T. 9S., R. 23E.

Date Completed: July 22, 1947

Total Depth: 6795'

Initial Potential: 494 BOPD

Deepest Well: Sinclair, Pre-Madison Unit 1. T.D. 9463'. Cambrian

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons; field not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: 11

Type of Trap: Structural

Productive Formations: Frontier (Upper Cretaceous). Madison (Mississippian)

Probable Drive Mechanism: Frontier, depletion drive; Madison

Secondary Recovery: Waterflood operations are being conducted in the Frontier formation. Additional details appear earlier in the report

Elk Basin

County: Carbon

Discovery Well:

Name: Hurst No. 1

Location: Sec. 30, T. 58N., R. 99W., Park County, Wyoming

Date Completed: 1915

Total Depth: 1402'

Initial Potential: 1000 BOPD (Frontier)

Spacing Regulations:

Commission waives Rule No. 203 within Unit Area, Order No. 10-61

Special Field Rules:

State-wide rules

No. Producing Wells: 57

Type of Trap: Structural

Productive Formations: Frontier (Upper Cretaceous); Dakota (Lower Cretaceous); Embar (Permian); Tensleep (Pennsylvanian); Madison (Mississippian)

Probable Drive Mechanism: Frontier, gravity drainage; Embar-Tensleep, gravity drainage; Madison, water drive

Secondary Recovery: Frontier, crestal gas injection with sweet gas; Embar-Tensleep, full pressure maintenance by crestal injection of inert gas, and water injection into the Madison. More details concerning these projects appear earlier in the report

Fertile Prairie

County: Fallon

Discovery Well:

Name: Mon-O-Co, Ferguson-Goldin No. 1

Location: SE SW Sec. 18, T. 7N., R. 61E.

Date Completed: November 8, 1954

Total Depth: 9286'

Initial Potential: 132 BOPD

Deepest Well: McAlester Fuel, NP No. A-1. Winnipeg (Ordovician). T.D. 9684'

Spacing Regulations:

80-acre spacing, permitted wells in the NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each quarter section, 75' tolerance for topographic reasons; field delineated by Order No. 7-62

Special Field Rules:

State-wide rules

No. Producing Wells: 1

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Water drive

FLAT COULEE

County: Liberty

Discovery Well:

Name: Northern Petroleum, Northern Farms 2
Location: NE SW Sec. 10, T. 37N., R. 5E.
Date Completed: 1933
Total Depth: 2879'
Initial Potential: 30 BOPD (Swift)

Spacing Regulations:

40-acre oil well spacing, 150' tolerance for surface conditions, field delineated by Order No. 16-62.
Gas wells to be no less than 330' from quarter-quarter section line and 1320' between wells, 75' tolerance for topographic reasons.

Special Field Rules:

State-wide rules

No. Producing Wells: 11 (Oil)

Type of Trap: Structural and stratigraphic

Productive Formations: Swift (Oil) Jurassic; Blackleaf (Gas) Cretaceous; Madison (Gas) Mississippian

Probable Drive Mechanism: Depletion drive (Swift)

GAGE

County: Musselshell

Discovery Well:

Name: Northern Ordnance, Morris No. 1
Location: SW SW Sec. 15, T. 9N., R. 26E.
Date Completed: September 9, 1943
Total Depth: 7495'
Initial Potential: 120 BOPD

Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons; field not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: 2

Type of Trap: Combination structural and stratigraphic

Productive Formations: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

FRANNIE

County: Carbon

Discovery Well:

Name: Pan American, Rosenberg C-1
Location: NW NE NW Sec. 25, T. 58N., R. 98W., Park County, Wyoming
Date Completed: February 28, 1928
Total Depth: 2612'
Initial Potential: 9 BOPD

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons; field not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: 2

Type of Trap: Structural

Productive Formations: Tensleep (Pennsylvanian)

Probable Drive Mechanism: Combination water drive and gravity drainage

GAS CITY

County: Dawson

Discovery Well:

Name: Shell, No. 33X-21
Location: NE NW SE Sec. 21, T. 14N., R. 55E.
Date Completed: June 4, 1955
Total Depth: 9596'
Initial Potential: 202 BOPD, 5 BWPD, 22/64" ck.

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:

Commission waives Rules No. 203, 213, 218 and 219 for unitized portion. Field delineated by Order No. 29-62

Special Field Rules:

State-wide rules

No. Producing Wells: 27

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Water drive

Water Disposal: Order No. 32-61 permits the unit operator to dispose of produced salt water by injection into the Judith River formation

GLENDIVE

County: Dawson

Discovery Well:

Name: Texaco, NP "G" (NCT-1) No. 1

Location: NE NE Sec. 35, T. 15N., R. 54E.

Date Completed: January 10, 1952

Total Depth: 9079'

Initial Potential: 254 BOPD

Deepest Well: Texaco, NP "G" (NCT-1) No. 2. Winnipeg (Ordovician). T.D. 10,537'

Spacing Regulations:

80-acre spacing, permitted well in the NE $\frac{1}{4}$ and SW $\frac{1}{4}$ of each quarter section, 75' tolerance for topographic reasons. Field delineated by Order Nos. 19-62 and 58-62

Special Field Rules:

State-wide rules

No. Producing Wells: 11

Type of Trap: Stratigraphic and structural

Productive Formations: Interlake (Silurian). Stony Mountain-Red River (Ordovician)

Probable Drive Mechanism: Water drive

Water Disposal: Water disposal started March 25, 1956.
More details appear earlier in report

GRABEN COULEE

County: Glacier

Discovery Well:

Name: Cardinal Petr., McAlpine 1

Location: NE SW Sec. 3, T. 37N., R. 5W.

Date Completed: December 7, 1961

Total Depth: 2816'

Initial Potential: 56 BOPD

Spacing Regulations:

Sunburst: One well per 40 acres, no closer than 330' from quarter-quarter section boundary. Cut Bank and Madison: 10-acre spacing with center 5-spot well also permitted. Field delineated by Order No. 73-62

Special Field Rules:

State-wide rules

No. Producing Wells: 15

Type of Trap: Structural and stratigraphic

Productive Formations: Sunburst (L. Cret.), Cut Bank (Cretaceous), Madison (Mississippian)

Probable Drive Mechanism: Depletion drive

GYPSY BASIN

County: Teton and Pondera

Discovery Well:

Name: Western Oils, Bills No. 1

Location: SW SE SW Sec. 31, T. 28N., R. 6W.

Date Completed: July 8, 1951

Total Depth: 3410'

Initial Potential: 50 BOPD

Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:

Center of 40 acres, 150' tolerance for topographic reasons. Field delineated by Order No. 13-59

Special Field Rules:

State-wide rules

No. Producing Wells: 4

Type of Trap: Combination structural and stratigraphic

Productive Formations: Madison (Mississippian)

Probable Drive Mechanism: Combination water drive and depletion drive

HARDIN

County: Big Horn

Discovery Well:

Name: Yellowstone Oil & Gas, Blair No. 1

Location: Sec. 10, T. 1S., R. 33E.

Date Completed: 1913

Total Depth: Unknown

Initial Potential: Unknown

Deepest Well: Daniels Petroleum Co., No. 1, Sec. 13, T. 1S., R. 33E. Madison (Mississippian). T.D. 4195'

Spacing Regulations:

1320' from lease line, 3700' between wells, 75' tolerance for topographic reasons; not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: 41

Type of Trap: Stratigraphic

Productive Formations: Frontier (Cretaceous)

Probable Drive Mechanism: Volumetric

HIBBARD

County: Rosebud

Discovery Well:

Name: Sinclair, Kesterson No. 1

Location: SE NW Sec. 34, T. 10 N., R. 33E.

Date Completed: February 29, 1960

Total Depth: 5240'

Initial Potential: 240 BOPD

Deepest Well: Above well. Heath (Mississippian)

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Field not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: 1

Type of Trap: Unknown

Productive Formations: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

KEG COULEE

County: Musselshell

Discovery Well:

Name: American-Climax Petr. Corp., DeJaegher No. 1

Location: SE NE Sec. 31, T. 11N., R. 31E.

Date Completed: April 1, 1960

Total Depth: 4635'

Initial Potential: 177 BOPD

Spacing Regulations:

80-acre spacing, pattern varies; 100' tolerance for topographic reasons. Field delineated by Order No. 11-60

Special Field Rules:

State-wide rules

No. Producing Wells: 13

Type of Trap: Stratigraphic

Productive Formations: Tyler (Pennsylvanian)

Probable Drive Mechanism: Depletion drive

IVANHOE

County: Musselshell

Discovery Well:

Name: Chicago-Republic, No. 1

Location: SW SE NE Sec. 17, T. 11N., R. 31E.

Date Completed: September 15, 1953

Total Depth: 5210'

Initial Potential: 92 BOPD (Morrison)

Deepest Well: Above well. Charles (Mississippian)

Spacing Regulations:

Center of 40-acre, 200' tolerance for topographic reasons. Delineated by Orders No. 13-56 and 7-60

Special Field Rules:

State-wide rules

No. Producing Wells: 18

Type of Trap: Structural and stratigraphic

Productive Formations: Morrison (Jurassic). Amsden (Pennsylvanian). Tyler (Mississippian)

Probable Drive Mechanism: Morrison and Tyler, depletion drive; Amsden, water drive

KEITH — EAST

County: Liberty

Discovery Well:

Name: Texaco, Cicon No. 1

Location: NE NW SW Sec. 29, T. 36N., R. 6E.

Date Completed: December 17, 1944

Total Depth: 3221'

Initial Potential: 3000 MCFGPD

Deepest Well: Montana Power, Sorrel-Govt. No. 1. Cambrian. T.D. 5015'

Spacing Regulations:

640-acre spacing. Delineated by Order No. 22-62

Special Field Rules:

State-wide rules

No. Producing Wells: 6

Type of Trap: Structural

Productive Formations: Bow Island (Cretaceous); Sawtooth-Madison (Jurassic-Mississippian)

Probable Drive Mechanism: Water drive

KEVIN-SUNBURST

County: Toole

Discovery Well:

Name: Gordon Campbell-Kevin Syndicate, Goedertz No. 1

Location: NE NE NE Sec. 16, T. 35N., R. 3W.

Date Completed: March 14, 1922

Total Depth: 2540'

Initial Potential: 10 BOPD

Deepest Well: Lee Edwards, Inland Empire No. 1, Pre-Cambrian. T.D. 4916'

Spacing Regulations:

9 wells per 40-acre tract, only 3 wells on any side of tract set back at least 220' from line, 75' tolerance for topographic reasons. Field delineated by Orders No. 8-54 and 28-55

Special Field Rules:

State-wide rules, except Rules No. 207, 211, 219, 221, 223 and 224 do not apply

No. Producing Wells: 1006

Type of Trap: Stratigraphic

Productive Formations: Madison (Mississippian); Sawtooth (Jurassic); Sunburst (Cretaceous)

Probable Drive Mechanism: Depletion drive

Secondary Recovery: Two small pilot waterfloods are now in operation. Results of these floods are yet inconclusive. Additional data concerning these pilots appears earlier in the report.

LAUREL

County: Yellowstone

Discovery Well:

Name: King Oil Company, Van Winkle 1

Location: NE SE Sec. 24, T. 2S., R. 24E.

Date Completed: July 7, 1961

Total Depth: 1000'

Initial Potential: 45 BOPD

Deepest Well: Pan American Syn., SW SW NE, Sec. 23, T. 2S., R. 24E. T.D. 2365'

Spacing Regulations:

10-acre spacing with 75' tolerance for topographic conditions. Field is delineated by Order No. 15-62

Special Field Rules:

State-wide rules

No. Producing Wells: Shut-in

Type of Trap: Structural and stratigraphic

Productive Formation: Dakota (Cret.)

Probable Drive Mechanism: Depletion drive

LAKE BASIN — NORTH

County: Stillwater

Discovery Well:

Name: Holland-American, Castle No. 1

Location: NW SE Sec. 22, T. 2N., R. 21E.

Date Completed: January 11, 1958

Total Depth: 4179'

Initial Potential: 480 MCFGPD, Eagle; 4500 MCFGPD, Frontier

Deepest Well: Superior, Copulos 71-22. Pre-Cambrian. T.D. 7929'

Spacing Regulations:

640-acre spacing, permitted well in the NW SE of each section, 75' tolerance for topographic reasons. Delineated by Order No. 6-58

Special Field Rules:

State-wide rules. Frontier and Eagle may be dually completed without provisions of Rule 219

No. Producing Wells: Shut-in

Type of Trap: Structural

Productive Formations: Eagle (Cretaceous); Frontier (Cretaceous)

Probable Drive Mechanism: Unknown

LITTLE BEAVER

County: Fallon

Discovery Well:

Name: Shell, Unit No. 23-13

Location: NE SW Sec. 13, T. 4N., R. 61E.

Date Completed: July 30, 1952

Total Depth: 8553'

Initial Potential: 313 BOPD, 33 BWPD

Deepest Well: Carter, NP No. 1, Sec. 19, T. 4N., R. 62E. Pre-Cambrian. T.D. 9676'

Spacing Regulations:

Commission waives Rules No. 203, 213, 218 and 219. Field delineated by Order No. 41-62

Special Field Rules:

State-wide rules

No. Producing Wells: 24

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Combination depletion and water drive

LITTLE BEAVER — EAST

County: Fallon

Discovery Well:

Name: Montana-Dakota Utilities, NP No. 1

Location: Sec. 17, T. 4N., R. 62E.

Date Completed: October, 1952

Total Depth: 8186'

Initial Potential: 25 BOPD

Deepest Well: Shell, No. 14-34, Sec. 34, T. 5N., R. 61E.
Red River (Ordovician). T.D. 8471'

Spacing Regulations:

Commission waives Rules No. 203, 213, 218 and 219.
Field delineated by Order No. 42-62

Special Field Rules:

State-wide rules

No. Producing Wells: 23

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Combination depletion and
water drive

Water Disposal: Details of this project appear earlier
in this report

MELSTONE

County: Musselshell

Discovery Well:

Name: Amerada, Hougen No. 1

Location: SE SE Sec. 23, T. 10N., R. 29E.

Date Completed: October 18, 1948

Total Depth: 4228'

Initial Potential: 655 BOPD, $\frac{3}{4}$ " ck.

Deepest Well: Amerada, Hougen No. 2 Sec. 23, T. 10N.,
R. 29E. Cambrian. T.D. 7626'

Spacing Regulations:

330' from quarter-quarter section line, 1320' be-
tween wells, 75' tolerance for topographic reasons.
Field not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: 5

Type of Trap: Structural and stratigraphic

Productive Formations: Tyler (Pennsylvanian)

Probable Drive Mechanism: Depletion drive

Water Disposal: Produced water was injected into the
Tyler "B" zone from February, 1954 to May, 1958.
A total of 1,056,000 barrels were injected before
the injection well plugged

LOOKOUT BUTTE

County: Fallon

Discovery Well:

Name: Continental Oil, NP A-29, No. 2

Location: SE SW Sec. 29, T. 7N., R. 60E.

Date Completed: December 26, 1961

Total Depth: 8851'

Initial Potential: 495 BOPD, 11 BWPD, 22/64" ck.

Spacing Regulations:

160-acre spacing, permitted well to be in SE $\frac{1}{4}$ of
each spacing unit, 150' topographic tolerance, de-
lineated by Order No. 21-62. Coral Creek Unit por-
tion of field not subject to spacing

Special Field Rules:

State-wide rules

No. Producing Wells: 46

Type of Trap: Structural

Productive Formations: Silurian, Ordovician

Probable Drive Mechanism: Combination depletion
drive with partial water drive.

MONARCH

County: Fallon

Discovery Well:

Name: Shell, NP 12-23

Location: Sec. 23, T. 9N., R. 58E.

Date Completed: November 18, 1958

Total Depth: 9175'

Initial Potential: 218 BOPD, 13 BWPD

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations:

160-acre spacing, SW $\frac{1}{4}$ of each quarter section, 175'
tolerance for topographic reasons, Siluro-Ordovi-
cian pool. Delineated by Order No. 12-59.

80-acre spacing, with permitted wells to be in the
SW $\frac{1}{4}$ or NE $\frac{1}{4}$ of each quarter-quarter section,
wells to be no closer than 330' from boundary of
permitted quarter-quarter section, Madison pool.
Delineated by Order No. 18-61.

Special Field Rules:

State-wide rules

No. Producing Wells: 16

Type of Trap: Structural and stratigraphic

Productive Formations: Red River (Ordovician); In-
terlake (Silurian); Mission Canyon (Mississippian)

Probable Drive Mechanism: Depletion drive with par-
tial water drive

MOSSER

County: Yellowstone

Discovery Well:

Name: Tarrant, Mosser No. 2

Location: SW SW NE Sec. 26, T. 3S., R. 24E.

Date Completed: January 25, 1937

Total Depth: 1027'

Initial Potential: 60 BOPD

Deepest Well: Tarrant, Mosser No. 1, Sec. 26, T. 3S., R. 24E. Madison (Mississippian). T.D. 2568'

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Order No. 21-56 establishes some exceptions

Special Field Rules:

State-wide rules

No. Producing Wells: 6

Type of Trap: Structural

Productive Formations: Dakota (Lower Cretaceous)

Probable Drive Mechanism: Water drive

OUTLOOK

County: Sheridan

Discovery Well:

Name: Amerada, Tange No. 1

Location: Sec. 20, T. 36N., R. 53E.

Date Completed: December 22, 1956

Total Depth: 9950'

Initial Potential: 2742 BOPD

Deepest Well: Amerada, A. Johnson No. 1, Sec. 33, T. 36N., R. 53E. Pre-Cambrian. T.D. 11,074'

Spacing Regulations:

160-acre spacing, permitted wells can be in either SW $\frac{1}{4}$ or NE $\frac{1}{4}$ of each quarter section, 175' tolerance for topographic reasons. Delineated by Order No. 19-59A

Special Field Rules:

State-wide rules

No. Producing Wells: 15

Type of Trap: Stratigraphic and structural

Productive Formations: Silurian-Devonian. Red River (Ordovician)

Probable Drive Mechanism: Water drive

Water Disposal: Produced water disposal began January 12, 1960 into the Dakota formation. More details appear earlier in the report

MUSSELSHELL

County: Rosebud

Discovery Well:

Name: Sumatra Oil Corp., DeJaegher 2

Location: SE NE Sec. 22, T. 11N., R. 31E.

Date Completed: July, 1962

Total Depth: 4420'

Initial Potential: 342 BOPD, 0.2% BS&W

Spacing Regulations:

330' from quarter-quarter section line and 1320' between wells, 75' topographic tolerance. Field not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: 2

Type of Trap: Structural and stratigraphic

Productive Formations: Tyler (Pennsylvanian)

Probable Drive Mechanism: Depletion drive

PENNELL

County: Fallon

Discovery Well:

Name: Shell, State No. 22X-36

Location: SE NW Sec. 36, T. 8N., R. 59E.

Date Completed: September 8, 1955

Total Depth: 9242'

Initial Potential: 205 BOPD, 39 BWPD

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:

80-acre, permitted wells in the NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each quarter section, 150' tolerance for topographic reasons in western portion of field.

160-acre spacing with permitted wells in the SE $\frac{1}{4}$ of each quarter section, 150' topographic tolerance in eastern portion of pool. See Order No. 20-62.

No. Producing Wells: 66

Type of Trap: Structural

Productive Formations: Lodgepole (Mississippian); Mission Canyon (Mississippian); Siluro-Ordovician

Probable Drive Mechanism: Combination depletion drive and water drive

Water Disposal: Produced salt water is being injected into the Siluro-Ordovician, Dakota and Madison reservoirs. More details appear earlier in report

PINE

County: Fallon, Wibaux, Prairie and Dawson

Discovery Well:

Name: Shell, Pine Unit No. 32-30

Location: SW SW NE Sec. 30, T. 12N., R. 57E.

Date Completed: January 28, 1952

Total Depth: 9746'

Initial Potential: 467 BOPD, 148 BWPD

Deepest Well: Shell, 43-22A, Sec. 22, T. 11N., R. 57E.
Pre-Cambrian. T.D. 10,414'

Spacing Regulations:

Commission waives Rules No. 203, 213, 218 and 219.
Field delineated by Order No. 37-62

No. Producing Wells: 152

Type of Trap: Structural

Productive Formations: Silurian-Ordovician

Probable Drive Mechanism: Combination depletion
and water drive

Secondary Recovery: A partial pressure maintenance
program was initiated March 10, 1959 by injecting
water into the producing horizon. Additional de-
tails and data appear earlier in the report

Water Disposal: Produced water has been disposed of
by injecting into the Dakota formation since Oc-
tober, 1958. A total of about 3,035,000 barrels had
been injected to January 1, 1962. There have been
no disposal injections since April, 1961

PLEVNA

County: Fallon

Discovery Well:

Name: F. H. Becker No. 1

Location: NE NE SE Sec. 28, T. 5N., R. 60E.

Date Completed: January 18, 1946

Total Depth: 1053'

Initial Potential: 300 MCFGPD

Deepest Well: True Oil, NP-Plevna 1, NE SW Sec. 29,
T. 5N., R. 60E., Red River. T.D. 8940'

Spacing Regulations:

1200' from quarter section line, 2400' between wells,
75' tolerance for topographic reasons. Field de-
lineated by Orders No. 34-54 and 4-57

Special Field Rules:

State-wide rules

No. Producing Wells: 27

Type of Trap: Structural

Productive Formations: Judith River (Upper Creta-
ceous)

Probable Drive Mechanism: Water drive

PONDERA

County: Teton

Discovery Well:

Name: Midwest Refining, Haber No. 1

Location: SE SE Sec. 17, T. 27N., R. 4W.

Date Completed: June, 1927

Total Depth: 2072'

Initial Potential: 3 BOPD, 3500 MCFGPD

Deepest Well: Wasatch Oil, Hirshberg No. 1, Sec. 23,
T. 27N., R. 4W. Pre-Cambrian. T.D. 5233'

Spacing Regulations:

220' from quarter-quarter section line, 430' between
wells, 75' tolerance for topographic reasons. De-
lineated by Order No. 9-54

Special Field Rules:

State-wide rules, except Rules No. 207, 211, 219, 221,
223 and 224 do not apply

No. Producing Wells: 293

Type of Trap: Structural and stratigraphic

Productive Formations: Madison (Mississippian)

Probable Drive Mechanism: Combination depletion
drive with limited water drive

Secondary Recovery: Commission has granted one op-
erator approval to initiate a one injection well
pilot waterflood. More details appear earlier in
this report

PONDERA COULEE

County: Teton

Discovery Well:

Name: Perl Smith, Louttit-Mills 1

Location: SE NE Sec. 4, T. 27N., R. 5W.

Date Completed: December 21, 1961

Total Depth: 2452'

Initial Potential: 30 BOPD

Spacing Regulations:

10-acre spacing, 75' topographic tolerance, field
delineated by Order No. 5-62

Special Field Rules:

State-wide rules

No. Producing Wells: 2

Type of Trap: Structural

Productive Formations: Madison (Mississippian)

Probable Drive Mechanism: Water drive

POPLAR

County: Roosevelt

Discovery Well:

Name: East Poplar Unit No. 1 Murphy Corp.
Location: SW NE Sec. 2, T. 28N., R. 51E.
Date Completed: March 10, 1952
Total Depth: 9163'
Initial Potential: 233 BOPD

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Delineated by Order No. 7-55

Special Field Rules:

State-wide rules

No. Producing Wells: 89

Type of Trap: Structural

Productive Formations: Charles-Mission Canyon (Mississippian)

Probable Drive Mechanism: Water drive

Secondary Recovery: Partial pressure maintenance by water injection was started in September, 1956. More details appear earlier in the report

Water Disposal: Excess produced water has been injected into the Dakota and Judith River formations since September, 1957. More details appear earlier in the report

POPLAR — NORTHWEST

County: Roosevelt

Discovery Well:

Name: Ajax Oil, McGowan No. 1
Location: SE SW Sec. 10, T. 29N., R. 50E.
Date Completed: May 12, 1952
Total Depth: 6274'
Initial Potential: 75 BOPD, 25 BWPD

Deepest Well: Humble, Harry Mason No. 1. Interlake (Silurian). T.D. 8392'

Spacing Regulations:

80-acre spacing, permitted wells in the NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each quarter section, 75' tolerance for topographic reasons. Field delineated by Order No. 18-55

Special Field Rules:

State-wide rules. Order No. 18-55 lists special well completion practices to be followed

No. Producing Wells: 4

Type of Trap: Structural

Productive Formations: Charles-Mission Canyon (Mississippian)

Probable Drive Mechanism: Water drive

RAGGED POINT

County: Musselshell

Discovery Well:

Name: Texaco, Manion No. 1
Location: SE SW Sec. 5, T. 11N., R. 30E.
Date Completed: January 4, 1948
Total Depth: 6312'
Initial Potential: 236 BOPD, 5% water

Deepest Well: Above well. Cambrian

Spacing Regulations:

Center of 40 acres, 75' tolerance for topographic reasons. Delineated by Orders No. 15-54 and 8-59

Special Field Rules:

State-wide rules

No. Producing Wells: 17

Type of Trap: Structural and stratigraphic

Productive Formations: Kibbey and Tyler (Mississippian)

Probable Drive Mechanism: Kibbey, water drive; Tyler, depletion drive

RAPELJE

County: Stillwater

Discovery Well:

Name: Shoreline Petroleum, C. F. Kirchner No. 1
Location: NE SW Sec. 4, T. 2N., R. 20E.
Date Completed: November 18, 1960
Total Depth: 4064'
Initial Potential: 840 MCFGPD

Deepest Well: Above well. Morrison (Jurassic)

Spacing Regulations:

1320' from lease line, 3700' between wells, 75' tolerance for topographic reasons. Field not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: Shut-in

Type of Trap: Unknown

Productive Formations: Eagle (Cretaceous)

Probable Drive Mechanism: Unknown

REAGAN

County: Glacier

Discovery Well:

Name: Reagan Associates, Tribal 194-1

Location: SE NE Sec. 22, T. 37N., R. 7W.

Date Completed: March 29, 1941

Total Depth: 3869'

Initial Potential: 6000 MCFGPD

Deepest Well: Union Oil, Blackfeet Tribal 194-12. Cambrian. T.D. 6258'

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons

Special Field Rules:

State-wide rules

No. Producing Wells: 43

Type of Trap: Structural

Productive Formations: Madison (Mississippian)

Probable Drive Mechanism: Combination gas cap and water drive

Secondary Recovery: A pressure maintenance project utilizing crestal gas injection was initiated during August, 1961. Additional details appear earlier in this report

RED STONE

County: Sheridan

Discovery Well:

Name: H. L. Hunt, Hagen No. 1

Location: NE NW Sec. 7, T. 34N., R. 52E.

Date Completed: November 1, 1958

Total Depth: 10,700'

Initial Potential: 100 BOPD

Deepest Well: Above well. Cambrian

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Field not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: 1

Type of Trap: Unknown

Productive Formations: Devonian

Probable Drive Mechanism: Water drive

RED CREEK

County: Glacier

Discovery Well:

Name: G. S. Frary, Isabel Moberly No. 1

Location: SW SW Sec. 1, T. 37N., R. 5W.

Date Completed: January 16, 1958

Total Depth: 2656'

Initial Potential: 1500 MCFGPD

Deepest Well: Pardee-Inland Empire, McAlpine No. 1, Madison (Mississippian). T.D. 2990'

Spacing Regulations:

Center of 40 acres, 75' tolerance for topographic reasons. Delineated by Orders No. 16-58 and 73-62

Special Field Rules:

State-wide rules. Rule 219 waived

No. Producing Wells: 26

Type of Trap: Structural and stratigraphic

Productive Formations: Cut Bank (Lower Cretaceous), Madison (Mississippian)

REPEAT

County: Carter

Discovery Well:

Name: Ohio Oil, Govt. No. 1

Location: Lot 4, Sec. 4, T. 1S., R. 62E.

Date Completed: March 27, 1956

Total Depth: 9362'

Initial Potential: 186 BOPD, 2% water

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:

330' from quarter-quarter section line, 1320' between wells, 75' tolerance for topographic reasons. Field not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: 1

Type of Trap: Unknown

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Water drive

RICHEY

County: Dawson and McCone

Discovery Well:

Name: Shell, NP No. 11-9

Location: SE NW NW Sec. 19, T. 23N., R. 50E.

Date Completed: November 29, 1951

Total Depth: 10,518'

Initial Potential: 1656 BOPD, 408 BWPD, 32/64" ck.

Deepest Well: Above well. Ordovician

Spacing Regulations:

80-acre spacing, permitted wells in the NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each quarter section, 75' tolerance for topographic reasons. Field delineated by Order No. 21-55

Special Field Rules:

State-wide rules

No. Producing Wells: 9

Type of Trap: Structural

Productive Formations: Charles (Mississippian)

Probable Drive Mechanism: Water drive

Water Disposal: Part of the produced water in this field is being injected into the Dakota formation. More details appear earlier in the report

RICHEY — SOUTHWEST

County: McCone

Discovery Well:

Name: Shell, NP No. 22-25B

Location: SE NW Sec. 25, T. 22N., R. 48E.

Date Completed: 1952

Total Depth: 10,188'

Initial Potential: 51 BOPD

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:

160-acre spacing, well to be located no closer than 900' from boundary of spacing unit. Field delineated by Order No. 25-62

Special Field Rules:

State-wide rules

No. Producing Wells: 5

Type of Trap: Structural

Productive Formations: Interlake (Silurian); Dawson Bay (Devonian)

Probable Drive Mechanism: Depletion drive

RUDYARD

County: Hill

Discovery Well:

Name: Texaco, Anderson No. 1

Location: SE SW Sec. 27, T. 34N., R. 9E.

Date Completed: December 9, 1955

Total Depth: 3435'

Initial Potential: 3500 MCFGPD

Deepest Well: Texaco, R. E. Blair No. 1, NW SE Sec. 28, T. 34N., R. 9E. Pre-Cambrian. T.D. 6550'

Spacing Regulations:

640-acre spacing, permitted well in C NW $\frac{1}{4}$, 150' tolerance for topographic reasons. Field delineated by Order No. 2-58

Special Field Rules:

State-wide rules

No. Producing Wells: Shut-in

Type of Trap: Structural

Productive Formations: Sawtooth (Jurassic)

Probable Drive Mechanism: Volumetric

SAND CREEK

County: Dawson

Discovery Well:

Name: Texaco, Gnelff No. 1

Location: SE NE Sec. 4, T. 15N., R. 54E.

Date Completed: March 8, 1959

Total Depth: 9684'

Initial Potential: 408 BOPD

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations:

80-acre spacing, permitted wells in the NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each quarter section, 150' tolerance for topographic reasons. Field delineated by Order No. 16-59

Special Field Rules:

State-wide rules

No. Producing Wells: 5

Type of Trap: Structural

Productive Formations: Interlake (Silurian); Red River (Devonian)

Probable Drive Mechanism: Water drive

Water Disposal: The disposal of produced salt water by injection into the Swift formation was initiated June 28, 1961. More details appear earlier in the report

SIDNEY-BRORSON

County: Richland

Discovery Well:

Name: Wendell C. Flynn, Beagle Land & Livestock Co. No. 1
Location: SW SW Sec. 17, T. 23N., R. 59E.
Date Completed: September 11, 1958
Total Depth: 13,135'
Initial Potential: 50 BOPD

Deepest Well: Above well. Winnipeg (Devonian)

Spacing Regulations:

Temporary 320-acre spacing, well to be located in the NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each section. Field delineated by Order No. 30-62

Special Field Rules:

State-wide rules

No. Producing Wells: 6

Type of Trap: Unknown

Productive Formations: Mission Canyon (Mississippian)

Probable Drive Mechanism: Water drive

SOAP CREEK

County: Big Horn

Discovery Well:

Name: Western States Oil & Gas Co., Tribal No. 1
Location: Approx. center Sec. 34, T. 6S., R. 32E.
Date Completed: February 11, 1921
Total Depth: 1966'
Initial Potential: 200 BOPD

Deepest Well: Inland Empire, Tribal 52-34. Sec. 34, T. 6S., R. 32E. Pre-Cambrian. T.D. 4470'

Spacing Regulations:

Center of 10 acres, 100' tolerance for topographic reasons. Delineated by Order No. 26-60

Special Field Rules:

State-wide rules

No. Producing Wells: 17

Type of Trap: Structural

Productive Formations: Tensleep, Amsden (Pennsylvanian); Madison (Mississippian)

Probable Drive Mechanism: Water drive

SNYDER

County: Big Horn

Discovery Well:

Name: George Greer, Kendrick No. 2
Location: NE NW NW Sec. 6, T. 1S., R. 35E.
Date Completed: October 4, 1952
Total Depth: 4588'
Initial Potential: 150 BOPD

Deepest Well: George Greer, Kendrick No. 3, Sec. 6, T. 1S., R. 35E. Winnipeg (Ordovician). T.D. 6808'

Spacing Regulations:

10-acre spacing with center 5-spot permitted. Field delineated by Order No. 45-62

Special Field Rules:

State-wide rules

No. Producing Wells: 4

Type of Trap: Structural

Productive Formations: Tensleep (Pennsylvanian)

Probable Drive Mechanism: Water drive

STENSVAD

County: Musselshell and Rosebud

Discovery Well:

Name: Honolulu, Stensvad No. 11-9
Location: NE SE Sec. 11, T. 11N., R. 31E.
Date Completed: December 20, 1958
Total Depth: 5516'
Initial Potential: 448 BOPD

Spacing Regulations:

Center of 40 acres, 200' tolerance for topographic reasons. Delineated by Orders No. 2-59, 22-59, 7-60

Special Field Rules:

State-wide rules

No. Producing Wells: 25

Type of Trap: Stratigraphic

Productive Formations: Tyler (Mississippian)

Probable Drive Mechanism: Depletion drive

Secondary Recovery: The operators in this field are in the process of forming a unit in order to initiate waterflood operations

SUMATRA

County: Rosebud

Discovery Well:

Name: Farmers Union, Sawyer No. 1

Location: NE SW Sec. 26, T. 11N., R. 32E.

Date Completed: October 8, 1950

Total Depth: 5277'

Initial Potential: 50 BOPD

Deepest Well: Texas, Horgen No. 1. Sec. 13, T. 11N., R. 32E. Kibbey (Mississippian). T.D. 5657'

Spacing Regulations:

Center of 40 acres, tolerance at Commission's discretion. Delineated by Order No. 14-58

Special Field Rules:

State-wide rules

No. Producing Wells: 101

Type of Trap: Stratigraphic

Productive Formations: Amsden (Pennsylvanian); Tyler (Mississippian)

Probable Drive Mechanism: Depletion drive

UTOPIA

County: Liberty

Discovery Well:

Name: Texaco, State M-1094

Location: NW SE SE Sec. 16, T. 33N., R. 4E.

Date Completed: October 5, 1943

Total Depth: 2579'

Initial Potential: 15 BOPD (Field produces gas)

Deepest Well: Texaco, Laas No. 2. Sec. 14, T. 33N., R. 4E. Cambrian. T.D. 4593'

Spacing Regulations:

1320' from lease line, 3700' between wells, 75' tolerance for topographic reasons. Field not delineated

Special Field Rules:

State-wide rules

No. Producing Wells: 7

Type of Trap: Structural

Productive Formations: Sawtooth (Jurassic); Madison (Mississippian); Jefferson (Devonian)

Probable Drive Mechanism: Unknown

TULE CREEK

County: Roosevelt

Discovery Well:

Name: Murphy, Sletvold No. 1

Location: SE SE Sec. 18, T. 30N., R. 48E.

Date Completed: October 27, 1960

Total Depth: 8478'

Initial Potential: 476 BOPD, 14/64" ck.

Deepest Well: Above well. Dawson Bay (Devonian)

Spacing Regulations:

160-acre spacing. Well to be located no closer than 900' from any boundary of spacing unit. Field delineated by Order No. 26-62

Special Field Rules:

Semi-annual B.H.P. surveys, with minimum of 12 hours shut-in

No. Producing Wells: 8

Type of Trap: Structural

Productive Formations: Nisku (Devonian)

Probable Drive Mechanism: Water drive

WHITLASH

County: Toole and Liberty

Discovery Well:

Name: Montana-Canadian Oil, E. Brown No. 1

Location: SE NE NW Sec. 19, T. 37N., R. 4E.

Date Completed: November, 1918

Total Depth: 2730'

Initial Potential: 15,000 MCFGPD

Deepest Well: Union Oil, Mahoney No. 1. Sec. 22, T. 37N., R. 4E. Cambrian. T.D. 4068'

Spacing Regulations:

330' from quarter-quarter section line, 650' between wells, 75' tolerance for topographic reasons. Field delineated by Order No. 16-54

Special Field Rules:

State-wide rules

No. Producing Wells: 42 Gas; 30 Oil

Type of Trap: Combination stratigraphic and structural

Productive Formations: Blackleaf, Bow Island, and Kootenai-Sunburst (Cretaceous); Swift-Sawtooth (Jurassic); Madison (Mississippian)

Probable Drive Mechanism: Volumetric

WHITLASH — WEST

County: Toole

Discovery Well:

Name: Sumatra Oil, Parsell 1

Location: SE SE NE Sec. 14, T. 37N., R. 23E.

Date Completed: August 7, 1962

Total Depth: 2880'

Initial Potential: 32 MMCFGPD

Spacing Regulations:

160-acre gas well spacing. Well to be located no closer than 660' from boundary of spacing unit. Field delineated by Order No. 61-62

Special Field Rules:

State-wide rules

No. Producing Wells: 3

Type of Trap: Unknown

Productive Formations: Swift (Jurassic)

Probable Drive Mechanism: Volumetric

WOODROW

County: Dawson

Discovery Well:

Name: Texaco, NP "G" (NCT-8) No. 1

Location: NE NE Sec. 7, T. 16N., R. 54E.

Date Completed: August 25, 1952

Total Depth: 8124'

Initial Potential: 114 BOPD, 20% water

Deepest Well: Texaco, Elpel No. 1. Winnipeg (Ordovician). T.D. 10,370'

Spacing Regulations:

80-acre spacing, permitted well in the NE and SW of each quarter section. Field delineated by Order No. 47-62

No. Producing Wells: 6

Type of Trap: Structural

Productive Formations: Charles (Mississippian), Nisku (Devonian), Silurian, Red River (Ordovician)

Probable Drive Mechanism: Water drive

WOLF SPRINGS

County: Yellowstone

Discovery Well:

Name: Atlantic, C. S. Horton No. 18-1

Location: SE SW Sec. 18, T. 7N., R. 32E.

Date Completed: July 31, 1955

Total Depth: 8442'

Initial Potential: 370 BOPD

Deepest Well: Above well. Cambrian

Spacing Regulations:

80-acre spacing, permitted wells in the NW $\frac{1}{4}$ and SE $\frac{1}{4}$, 75' tolerance for topographic reasons. Delineated by Order No. 9-59

Special Field Rules:

State-wide rules

No. Producing Wells: 18

Type of Trap: Structural

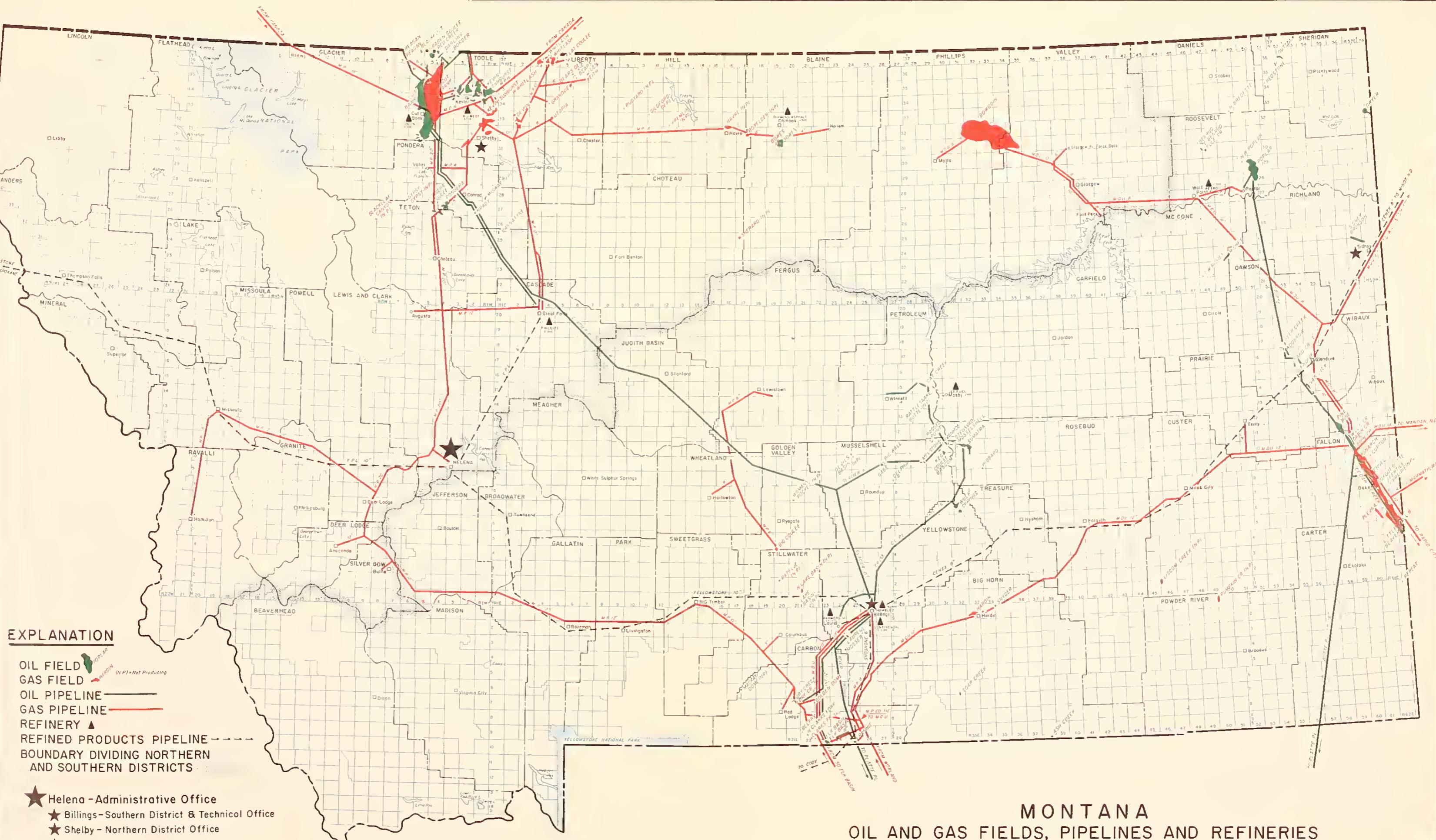
Productive Formations: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

STATE OF MONTANA — SUMMARY OF PRODUCING OIL FIELDS

LINE NO.	FIELD (OR POOL)	COUNTY	YEAR DISCOVERED	PRODUCTION FORMATION	APPROX. DEPTH	A.P.I. GRAVITY	VOLUME PAY FT.	AVG. NET POROSITY %	AVG. CONNATE WATER %	ORIGINAL OIL IN PLACE BBLS/ACRE	PRODUCTIVE AREA 1-1-63 ACRES	ORIGINAL OIL IN PLACE 1000 BBLS.	ESTIMATED RECOVERY FACTOR %	ORIGINAL PRIMARY RESERVES 1000 BBLS.	ORIGINAL SECONDARY RESERVES 1000 BBLS.	TOTAL ORIGINAL RESERVES 1000 BBLS.	CUMULATIVE PRODUCTION 1-1-63 1000 BBLS.	REMAINING RESERVES 1-1-63 1000 BBLS.	1962 PRODUCTION			ORIGINAL RECOVERABLE RESERVES BBLS./ACRE	LINE NO.			
																			DAILY BOPD.	TOTAL BBLS.	BBLS./ACRE/FT.					
1	Ash Creek	Big Horn	1952	Shannon (U. Cret.)	4500	34	1.05	14	22	35	14,855	160	2,377	26	--	618	--	618	366	252	26,695	73	3,865	276	1	
2	Bannatyne	Teton	1927	Swift (U. Jur.)	1450	27	1.05	39	15	43	24,635	170	4,188	5	--	209	--	209	147	62	15,151	42	1,230	32	2	
3	Bascom	Rosebud	1962	Tyler (Penn.)	4850	36	1.10	8	14	25	5,924	40	237	20	--	47	--	47	15	32	14,873	125	1,185	148	3	
4	Bears Den	Liberty	1924	Sunburst (L. Cret.)	2300	39	1.08	20	12	35	11,205	200	2,241	15	--	336	--	336	192	144	41,716	114	1,680	84	4	
5	Benrud	Roosevelt	1951	Nisku (Dev.)	7650	43	1.41	22	16	30	13,557	80	1,085	15	--	163	--	163	34	129	29,908	82	2,037	93	5	
6	Benrud-East	Roosevelt	1952	Nisku (Dev.)	7500	46	1.41	35	15	25	21,665	160	3,466	20	--	693	--	693	16	677	16,145	897	4,331	124	6	
7	Big Wall	Musselshell	1948	Tyler (Penn.)	3000	31	1.02	22	17	40	17,066	1,220	20,821	30	--	6,246	--	6,246	15,120	233	7					
8	Big Wall	Musselshell	1953	Amsden (Penn.)	2500	19	1.61	17	16	35	13,647	280	3,821	27	--	1,032	--	1,032	4,429	2,849	363,207	995	3,685	217	8	
9	Blackfoot	Glacier	1955	Madison (Miss.)	3550	25	1.15	8	14	40	4,533	480	2,176	25	--	544	--	544	906	113	113	113	9			
10	Blackfoot	Glacier	1955	Cut Bank (L. Cret.)	2500	30	1.11	15	15	35	10,221	160	1,635	25	--	409	--	953	620	333	104,557	286	2,556	170	10	
11	Border	Toole	1929	Cut Bank (L. Cret.)	2400	31	1.08	22	15	30	16,593	340	5,641	23	--	1,297	--	1,297	1,103	194	6,115	17	3,816	173	11	
12	Bowes	Blaine	1949	Sawtooth (M. Jur.)	3250	19	1.02	37	11,7	31	22,719	5,282	120,000	5,75	9.92	6,900	5,000	11,900	6,065	5,835	188,318	516	1,306	35	12	
13	Brady	Pondera	1942	Sunburst (L. Cret.)	1500	34	1.01	10	12	30	6,466	120	776	8	--	62	--	62	16	46	1,728	5	516	52	13	
14	Bredette-North	Roosevelt, Daniels	1956	Charles (Miss.)	6720	38	1.24	24	6	53	4,234	640	2,170	20	--	542	--	542	482	60	7,383	20	847	35	14	
15	Cabin Creek	Fallon	1953	Siluro-Ordovician	8400	33	1.20	50	13	30	29,415	7,620	224,142	18	26	40,346	19,000	59,346	25,363	33,983	3,394,462	9,300	5,294	106	15	
16	Cabin Creek	Fallon	1956	Mission Canyon (Miss.)	7300	33	1.13	25	11	30	13,215	2,259	29,832	18	--	5,373	--	5,373	3,502	1,671	459,183	1,258	2,378	95	16	
17	Cat Creek (Antelope-Mosby)	Petroleum, Garfield	1920	Kootenai (L. Cret.)	1225	52	1.10	10	21	19	11,997	200	2,399	22	--	528	--	528	20,029	5,627	220,182	603	18,351	360	18	
18	Cat Creek (West Dome)	Petroleum, Garfield	1920	Kootenai (L. Cret.)	1100	52	1.10	51	21	19	61,186	920	56,291	30	35	16,887	3,000	25,656	20,029	5,627	1,783	297	19	19		
19	Cat Creek	Petroleum, Garfield	1945	Harrison (U. Jur.)	1600	52	1.10	6	22	40	5,586	120	670	32	--	214	--	214	5,713	5,713	5,713	229	229	20	20	
20	Cat Creek	Petroleum, Garfield	1945	Swift (U. Jur.)	1750	52	1.10	25	18	40	13,043	880	16,758	30	--	5,027	--	5,027	1,391	1,391	1,391	13,790	38	3,491	116	25
21	Cut Bank	Glacier, Toole	1932	Kootenai (L. Cret.)	2900	38	1.15	16	15	35	10,542	54,250	57,903	19	23	108,681	26,500	142,645	95,235	47,410	1,912,278	5,239	2,003	125	21	
22	Cut Bank	Glacier, Toole	1945	Madison (Miss.)	3000	39	1.10	10	14	30	6,912	4,010	27,717	27	--	7,484	--	7,484	1,107	1,107	1,107	4,107	58	1,866	187	22
23	Deer Creek	Dawson	1952	Interlake (S11.)	9440	42	1.22	71	7	35	20,543	400	8,217	20	--	1,643	--	1,643	745	898	179,947	493	1,250	187	23	
24	Dry Creek	Carbon	1930	Greybull (L. Cret.)	5600	52	1.60	12	12	22	5,445	1,700	9,257	20	--	1,851	--	1,851	5,342	3,951	1,250	1,089	91	24	24	
25	Dry Creek	Carbon	1932	Pryor (L. Cret.)	5800	52	1.20	30	12	25	17,455	1,000	17,455	20	--	3,491	--	3,491	208	208	208	8,218	84	3,491	116	25
26	Dryer	Sheridan	1960	Mission Canyon (Miss.)	8000	33	1.12	30	11,8	55	11,033	4,880	52,958	15	--	7,943	--	7,943	1,471	6,472	935,742	2,564	1,654	55	26	
27	Elk Basin	Carbon	1915	Frontier (U. Cret.)	1200	45	1.16	30	21	20	33,702	120	4,044	54	--	2,184	--	2,184	1,126	57	15,777	57	1,036	27	27	
28	Elk Basin	Carbon	1942	Embar-Tensleep (Perm.-Penn.)	5000	29	1.16	124	10,5	10	78,598	1,376	108,144	57	--	61,642	107,359	107,359	39,663	67,698	3,641,910	9,977	2,363	28	28	
29	Elk Basin	Carbon	1946	Madison (Miss.)	5300	28	1.12	224	12	9	168,975	920	155,474	21.5	28	33,427	10,106	1,020	722	298	30,838	84				





GENERALIZED STRATIGRAPHIC CORRELATION CHART

SHOWING PRODUCING HORIZONS — MONTANA OIL AND GAS FIELDS, 1962

